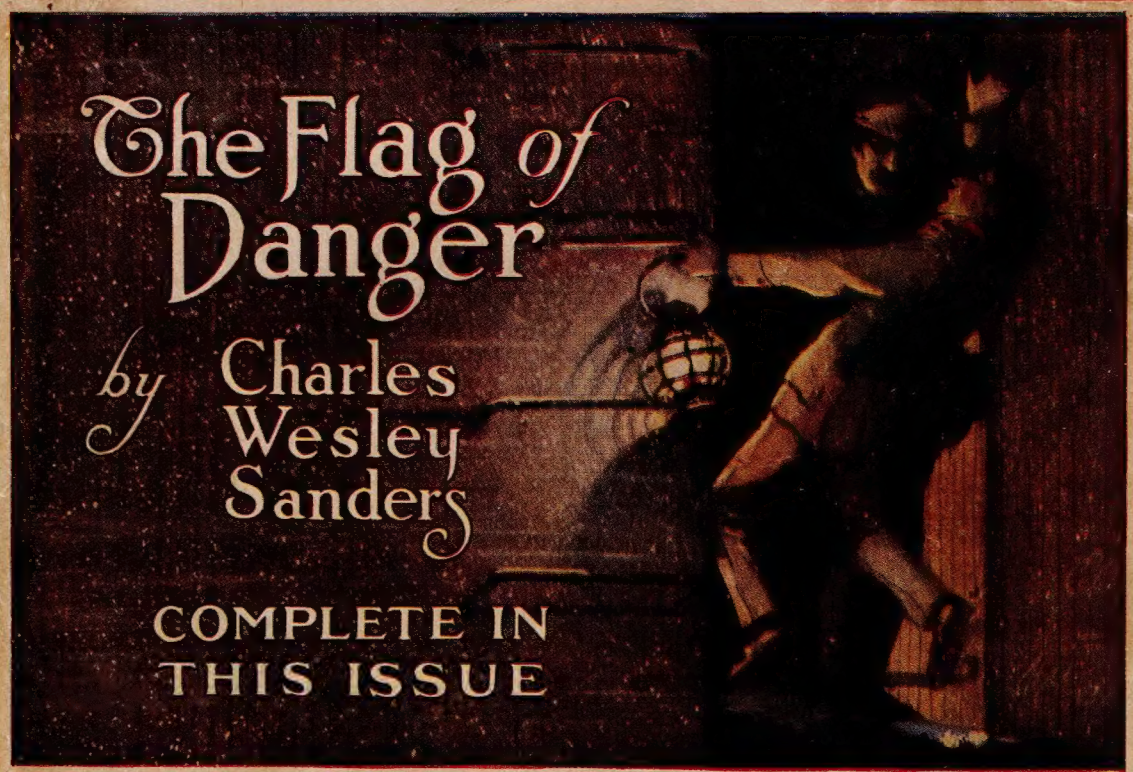
RAILROAD MAN'S MAGAZINE



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RAILROAD MAN'S MAGAZINE

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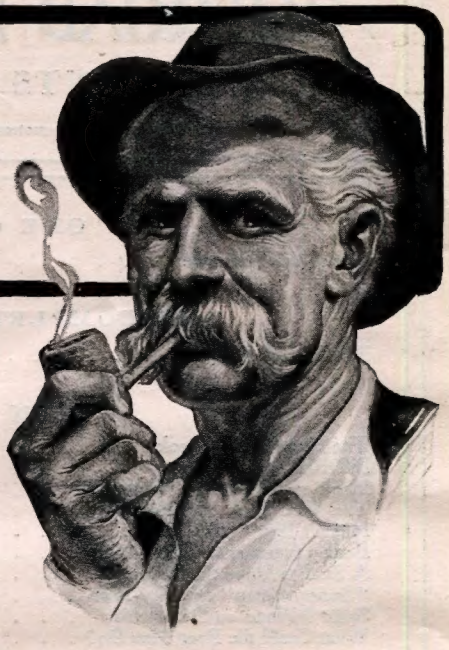

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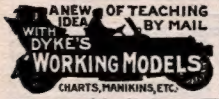

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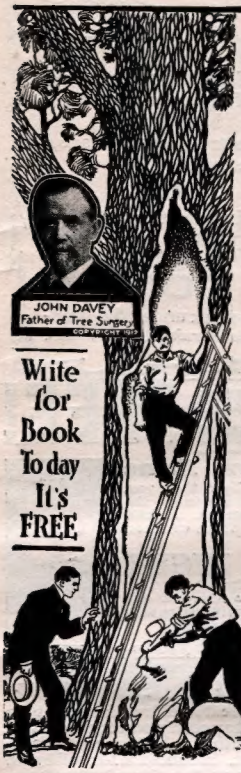

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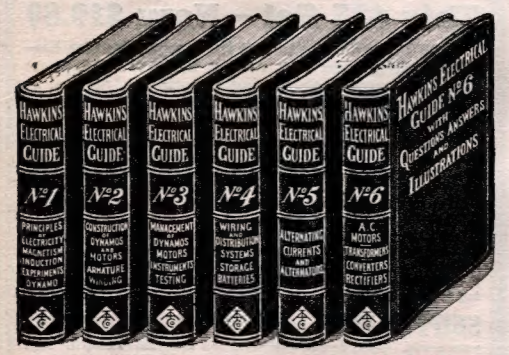

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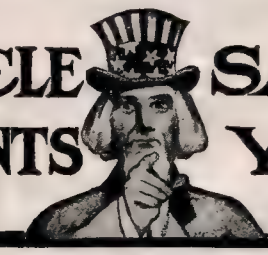

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RAILROAD MAN'S MAGAZINE

Vol. XXV OCTOBER, 1914. No. 2.

The Branch Line Spook.

BY LOVELL COOMBS.

Jerry Haddon, "Nite Opr." at "MD," Runs a Wire and Some Other Things into the Ground.

"IT sure is true. He comes in on the wire and says everything he said that night: the order he got wrong; what he said while he sat here waiting for the trains to meet, and, afterward, until he said good-by—and shot himself. That was why the other two night men left. Didn't they tell you?"

Incidentally, the station-agent's words to the round-faced lad dropped by the evening local were none too cordial. The possibility of being again routed out at midnight to man a deserted station a mile from the village did not appeal to him.

"Oh, yes, I heard about it; but I supposed there was nothing to it. I was on nights at Froster, and was fired for leaving my ground-wire on," Jerry Haddon added with boyish frankness. "The old man gave me a second chance here at Almeda."

The agent smiled grimly. "Then I can see the finish of your brass pounding for the B. and G. if it depends on your sticking."

Some hours later, during an interval when not a wheel was turning on the branch, Jerry Haddon started upright in his chair by the stove as the silent instrument clicked open and began rapidly calling the despatcher.

"S. S. S.," buzzed the sounder. "S. S. MD."

Jerry grasped the chair-arms. MD was his own station call.

Undoubtedly this was the ghost—the man who, in the flesh, had sat at the key there, read the fate to which his error had sent more than a score of human souls, and shot himself.

Pale, but pluckily fighting his instinctive fear, Jerry sat and listened as the excitedly clicking instruments buzzed on a moment, then abruptly ceased. Recalling the story of the haunting,

Jerry recognized the point at which the ghostly operator imagined he heard the interruption and response of the despatcher. Again the instruments clattered, and Jerry read rapidly:

"I just noticed my copy of orders for second 44 reads: Take siding at Ross, instead of Ross Crossing. Is that O K?"

There was a silent interval—the interval of the imagined quick reply of the despatcher—and while the boy shrank in his chair, the sounder whirled: "Oh, no! No! No!"

Then stiffly, stumblingly, with a spacing between the letters that conveyed a horror impossible to describe in letters, "G—o—d." Then sharply, madly: "I've sent the two specials together! What shall I do?"

Again fell a silence of imagined reply, and while Jerry gripped the chair and swallowed, the sounder stumbled slowly. "I, I, y-e-s. It's—too—late. I k-n-o-w. I k-n-o-w."

Once more came an interruption of silence, and the instruments snapped a quick, "O K. O K."

The listening boy, recalling the story, recognized the point at which the frantic operator had leaped to the telephone to call doctors and nurses.

The sounder resumed: "There, S? I got 'em, all but one. His wife will rush him right up when he comes."

There was another interval. Then began a prolonged period of spasmodic, indecipherable chattering—the unconscious drumming on the key of the nearly mad operator as he sat waiting the news of the coming wreck. This also was, as the listener had heard it, described.

Suddenly the meaningless stutter of dots and dashes was interrupted by a sharp, "I. I. MD." There was a moment's quiet, and again came that wailing, "Oh, no! No! No!"

The sounder once more ceased. It resumed limply, wearily: "I can't stand it, old man. I can't! I've my gun! I'll go with them! It was my fault! Good-by!"

Nerves could stand no more. With a cry the listening boy sprang for the door, and out. He was half-way down the station platform when the recollection that the job was his "last chance" slowed him. At the water tank he halted, and for five minutes fought with himself.

"If I don't stick, they'll fire me for good; sure!" he argued. "And, anyway, I don't believe in ghosts. Nobody does nowadays! There must be some explanation! I'll try and find it immediately!"

Resolutely Jerry faced about and returned.

At seven o'clock in the morning, Agent Burrows appeared. "Well, hear the spook, youngster?" he queried lightly.

The cheerfulness of Jerry's "Yep" was somewhat forced but determined.

"You did? You're going back on 64, then."

"I'm not. I'm going to stick and try and find the explanation of 'him' next time he shows up," declared Jerry.

Agent Burrows laughed heartily and derisively.

It was nearing midnight of an even week later when the ghostly telegrapher returned. With the first excited buzz of the instruments, Jerry Haddon was over the table, and had driven a brass-tipped plug into the switch above. If the hand working the wire were to the west of him, the instruments would now be silent—"grounded west." They rattled on. He whipped out the plug and drove it in "east." Still the sounder buzzed.

With a hand that trembled in spite of him, Jerry withdrew the plug and retreated to the chair by the stove. The unknown came in from both east and west. And the wire was not a "metallic circuit," that is, running back to the point from which it started. It ended at Denville. More, it ended in a "ground wire," not a battery!

This fact, not previously thought of,

almost brought a panic of conviction that the agency was supernatural. It meant that when he had "grounded west" at the switch, the instruments had continued to work on a "dead" wire to the east.

Jerry summoned his oozing courage, returned to the table, and threw the telegraph key open.,

As the sounder at once became silent, he breathed a sigh of partial relief. Here was one condition under which the ghostly hand could not manipulate the local instruments.

He closed the key and the sounder immediately resumed.

Listening, Jerry recognized a point farther on in the weird, one-sided conversation. The mysterious sender had not been conscious of an interruption that would at once have stopped an operator in the flesh.

With lips compressed and eyes that would flicker toward the door, Jerry returned to the chair by the stove and settled down to await the end of the ordeal. After a word-for-word repetition of the conversation of the previous occasion it came.

An effort carried the boy again to the instruments. He opened the key, and called Stanton (SN), the first station west. After a prolonged wait SN replied.

"Did you hear the spook to-night?" Jerry tapped.

"I heard him begin and grounded him out," was the response. "He only comes in here from the east."

Jerry called the next station west of Stanton. "Didn't hear a dot," ticked Bullwer.

With growing interest Jerry called Russell, the first station east, and repeated his question. "Did you ever try your ground on him?" he added.

"Yes," was the reply. "He comes in here from both ways, but weaker from the east."

Jerry called DV.

"Yes," rattled Denville, "I heard him and grounded him. He's west of me. Funny biz, isn't it?"

"It sure is," commented Jerry to himself jubilantly, as he closed his key. "But it's located somewhere between Denville and Stanton. Very well. I'll go over every inch of the line between those places, if it takes me a year!"

The first step in carrying out this decision—a tramp westward along the right of way that afternoon—brought a discovery that promised, then disappointed. A mile from Almeda an abandoned rural telephone line appeared from a cross-road, continued west on the railroad poles for three miles, then ended in a dangling break. And Jerry's dependable eyes had sought in vain for a cross-connection between the two wires.

The following afternoon, however, brought result. A half-mile east of Almeda the telephone line reappeared to resume its paralleling of the railroad wire.

And ten miles away, which distance Jerry had covered from the caboose of a freight, the young operator investigated a second break of the telephone line to find the prostrate end driven deep in a moist spot of earth.

The burying of the wire, plainly, could not have been accidental. Had it been thrust into the soil by some one desiring a "ground" connection for the old telephone line? With hopeful emphasis Jerry declared to himself that it had, and, also, that it bore some relation to the haunting mystery.

At Almeda that night Jerry addressed a letter to the chief despatcher, describing his discoveries and observations in minute detail. He was about to seal it, when, on second thought, he rewrote and addressed the letter to the wire chief of one of the big New York telegraph offices. Two days brought this reply:

FRIEND HADDON:

Thank you for a very interesting problem. The explanation seems to me fairly simple, however—a case of induction between wires paralleling one another for some distance.

My theory is that some one is using the old phone wire, and, as a joke, occasionally throwing on a heavy current and playing "ghost" into your wire. As you do not mention your wire opening before a demonstration begins, a pole-changer must be used (I suppose you know this is an instrument for throwing alternately a positive and negative current into a wire), the one pole first opening your wire by throwing in a current of the same polarity.

The fact of the "ghost" not being heard over your entire circuit would be explainable by the fact that your wire is old and in bad condition, as you describe. There would be sufficient cutting-down resistance in the old splices to kill the induction—and thus the ghost—a few miles beyond the point at which the phone wire ceases to parallel yours.

At any rate, to prove this, all you have to do is to quietly cut the phone line somewhere; since, as you say, you can't get away during the night to tap it with a portable telegraph set. Cut it, and watch what happens. If the ghost returns, look and see whether your cut hasn't been repaired.

Fraternally,
FRANK T. RICKLE.

Jerry Haddon lost no time in carrying out the New York chief's suggestion. On the way to the station that evening he made a détour eastward to the point at which the old telephone line approached the railroad, ascended a pole and cut the wire with a file.

Descending, he cut out a section of the fallen line and carried it away with him, to make the repair more difficult.

The following morning he returned to the spot; and so for three consecutive mornings. On the fourth he neared the scene—to start forward at a run. The break had been repaired.

He hastened to the nearest pole and shinned aloft. A glance told that the "patching" was the work of an experienced hand.

Moreover, the repairing at this point indicated that the section of the telephone line looping back from the railroad was necessary to the perpetrator of the haunting—if such the mysterious lineman was.

Jerry did not take long in deciding to go over the loop. He descended and set off rapidly along the little-used road. A half mile north, the poles left the road, crossed a field and disappeared in a piece of woodland.

Jerry vaulted the fence and followed. Reaching the wood, he pursued a winding lane and soon came directly into a wood-yard at the rear of an old-fashioned farmhouse. The wires passed on over the woodshed roof.

As he stood uncertainly, a kitchen door opened and a white-haired woman appeared. She saw him. Jerry advanced, formulating an excuse.

"Good morning, ma'am," he said, raising his hat. "Would you kindly let me use your telephone? I went for a tramp from Almeda and got farther than I realized. I'd like to send in word that I'll be late for dinner."

"I'm sorry," the old lady replied pleasantly, "but the old line is not used now, and the new line does not connect with Almeda. When the new company came through, every one dropped the old line and it hasn't been used since—at least, not for telephoning. A boarder of ours—a telegraph operator who was ordered by the doctors to spend a year in the country—has fixed it up into a telegraph wire and has a little office down in the drive-shed loft. He did it to keep in practise."

With difficulty Jerry held his tone casual as he replied: "That was a good idea. What is his name? I know one or two railroad operators."

"Lander. But he's not a railroad operator. He was an operator on the Chicago Exchange. He gets telephone messages from there once or twice a week about some investments," the old lady added.

"Guess I don't know him. Well, I'll have to hoof it back and be my own telephone," Jerry concluded.

"Thank you. Good morning."

As the old woman closed the door Jerry glanced back, turned and passed quickly about the woodshed.

At the end of a short lane was a barn and an open-front carriage-house. Following the wires, Jerry saw that they ended in a gable of the carriage-house.

A number of hens and a calf were the only signs of life. Jerry hastened to the shed and entered. It was cluttered with farm machinery. The open loft above was reached by a ladder. He listened a moment, and ascended. The mow was filled with hay, but along the wall was a narrow space. Jerry squeezed through, emerged into an opening before a dusty window and uttered an exclamation of satisfaction.

Neatly arranged on a large box was a set of telegraph instruments. It did not require the identification of a miniature "walking-beam" as the "pole-changer" mentioned by the New York chief to inform Jerry that he was at his goal. A glance into the box revealed the battery, a group of storage cells.

On a convenient nail Jerry saw a small magazine pistol.

The completeness of the outfit—and the revolver—checked Jerry's elation. That such an equipment should be set up merely to perpetrate a joke was unbelievable. What was the owner's purpose?

Beside the telegraph key was a double-point switch. Jerry proceeded to examine the connections leading from this. As he did so, seeking its particular purpose, a detail of the haunting as heard at Almeda station recurred to him with an inspiration that almost brought an exclamation of enlightenment.

The unreadable jumble that always formed part of the demonstration—could that not be simply the usual telegraph characters sent into the wires backward, reversed, by this "pole-changer?" A hurried completion of the examination showed beyond doubt that such would be the result of throwing the double-point switch.

"That's it, sure as you're born!" Jerry cried with delight. "The 'jumble' is a message to some one—some one who can read it by reversing his relay points. What can it be about?"

The obvious way to secure an answer was to conceal himself in the loft and observe the operations of the "ghost-maker" that night. That a demonstration would be given seemed probable, as the broken telephone line had been newly repaired. This would necessitate his absence from the station that night; but Jerry had no doubt that his purpose would extenuate him and promptly decided on the venture.

A place of concealment was arranged readily behind a hillock of hay.

A dull enough vigil it proved; but with the aid of a nap the afternoon passed and darkness fell.

Finally, about ten o'clock, footsteps sounded below, ascended the loft ladder and rustled over the hay.

A moment after, the light of a lantern revealed at the improvised instrument table a tall figure with a thin, shrewd, clean-shaven face.

It was Lander, of course, the old woman's telegrapher boarder.

Jerry had arranged his place of concealment to command a view of the table. When Lander seated himself on a smaller box before the instruments and produced and spread out in the lantern light a sheet of paper covered with writing, Jerry smiled jubilantly. When Lander grasped the telegraph key and began rapidly repeating the call letter of the despatching office at Division Junction—the prelude of the haunting—Jerry barely suppressed a chuckle.

Lander repeated the call, closed the key for a moment—the interval of the despatcher's supposed response—then, word for word, began the vivid repetition of the previous year's tragedy as Jerry had read it off the instruments at Almeda.

The sender drew near that part of the haunting which, as heard on the railroad wire, was a mere unreadable

jumble. He paused and threw the double-point switch. As he then moved the sheet of paper nearer the light, Jerry craned forward breathlessly.

Under Lander's hand the instruments resumed. In letters as intelligible as the previous sending, but which Jerry knew were going into the railroad wire reversed and unreadable, the listener read:

"Catch on, Bill. Double-header; due about 2.30, S. & N. N.; 190330, yellow car, seventeenth back, left door, forty typewriters. G. & P. Q. 480224, red car, three back, right door, six cases shoes marked N in diamond; four motor-cycles—"

As a precaution Jerry had secured the revolver hanging within the box. He pulled the weapon from his pocket and jumped toward the astonished Lander with a cry of "Hands up!"

In his excitement he pulled the trigger. The bullet had missed, but Lander, on his feet, was stumbling backward with fluttering hands.

"All right; all right, kid!" he entreated. "Don't shoot again."

Jerry halted, confused. Lander was first to recover himself. "Look here, kid," he began insinuatingly, "you are mistaken. This is no—"

"Back! Back further!" ordered Jerry. "Now, you needn't try any bluffing," he added, his wits returned. "The whole thing came to me as soon as I got onto that freight robbery stuff. Some one at the junction freight sheds phones you after the making up of the night freights—the 'Chicago stock market business' the old lady at the house told me of—then you come here and telegraph the word over the old telephone wire to some one east on our railroad wire—after first 'playing ghost.' The party you telegraph to passes the word on to the looters. It's some one between here and Denville—where you have this phone wire grounded—and near the main line; so I'll wager the looting is done on the long grade at Farview."

"A regular sure-enough Nick Carter, aren't you!" sneered Lander. "You're a mile off. There is not the slightest connection between the old phone wire and the railroad wire, and I can prove it."

Jerry laughed. "Here is the connection." With the revolver he indicated the battery within the box and the pole-changer "induction."

Lander stared. "Well, now that you've got the drop what are you going to do with it?" he growled.

"I'm thinking. Let's see. If I send a message to one of the stations that hear the 'spook,' your friend will hear, too. I have it! I'll send word to Jones, at Stanton, in Continental Morse. He understands that. I'll take the chance of your friend not being onto it."

"He does understand it," declared Lander quickly. "He once worked a cable wire at New York."

Jerry smiled. "He does not, or you'd be tickled to have me tip him off that way!"

While he continued to point the revolver with one hand, Jerry grasped the telegraph key with the other and began working it rapidly.

At dawn the following morning, thirty miles distant, several large farm wagons, mysteriously loaded on a barren hillside after the passage of a slow-moving freight, and carrying a seemingly unnecessary complement of drovers, got under way only to be halted by a gun-pointing circle of deputy sheriffs and trainmen.

A little apart a youngster of twenty-two stood guard over two earlier prisoners, one of whom, the most crestfallen, wore an agent's cap of the B. and G.

Some two hours later Jerry Haddon ascended the stairs of the Division Junction despatching office, and deposited a bundle of telegraph instruments on the desk of the chief despatcher.

"There is the Branch Line 'spook,' Mr. Gates," he said.

MAKING THE AIR-BRAKE SAFER.

Modern Speed and Rolling-Stock Demand Constant Refinement of the Invention That Made George Westinghouse Immortal.

INDISPENSABLE TO RAILROADS' GROWTH.

From the Original Straight-Air Shoe Which Amazed the Old-Timers of 1869, the Wonderful Electro-Pneumatic Clasp, Capable of Dissipating Millions of Pounds of Energy in a Few Seconds, Has Been Evolved in Less Than Half a Century.

BY CHARLES FREDERICK CARTER.

HEN the management of the New York subway realized that the capacity of the road would have to be increased, no additional motive-power or equipment was provided. More up-to-date brakes were introduced. This solved the problem. Three years later the management was again confronted with the necessity of increasing the road's capacity. The electrical engineers proposed larger motors capable of hauling trains sixty miles an hour instead of forty, the maximum then in effect.

To increase speed seemed the logical course. Yet this would actually have decreased the capacity of the subway. If speed were doubled, trains would require four times the distance in which to stop. To increase speed from forty to sixty miles an hour would have doubled the distance required for stopping. With stations so close together, much more time would have been consumed between stations. The air-brake experts suggested that to haul more passengers still better brakes should be installed so that stops could be made in a shorter distance.

A train in motion possesses a certain amount of energy, which can be dissipated in minutes or in seconds. If it is done in seconds the stop is short; if minutes are consumed time is wasted. With better brakes a train leaving a station simultaneously with a train using the old brakes and limited to the same maximum speed would still be running under power some distance beyond the point at which the old train would have to shut off and apply brakes. The new train would reach the station and discharge and take on passengers by the time the old train pulled up.

The air-brake men carried their point. No change was made in motive-power or speed. An entire new

outfit of brakes was installed. To the delight of the management the capacity of the subway was increased forty per cent at one-twentieth of the cost of putting in more powerful motors. With the new brakes, trains could continue under power twenty seconds longer than was possible with the old brakes.

The distance required to make an emergency stop was reduced from 650 feet to 350 feet. This, of course, reduced the headway between trains. The equipment could thus make more trips in a day, and the same number of cars could carry more passengers.

What it did for the subway the air-brake has done for the steam roads. If the air-brake had not been continually improved the marvelous growth in size of locomotives and cars and speed of trains, with corresponding expansion of traffic capacity, would not have been possible. The transportation system would long since have broken down and the development of the country would have been materially checked.

For forty-five years the air-brake has not only kept pace with the swift growth of the railroad, but by keeping a little in advance has made the growth possible.

The invention of the air-brake carried the name of George Westinghouse all over the United States before he was twenty-five years old, and all over the world before he was thirty-five.

While the original straight-air brake marked the beginning of the real usefulness of the railroad, and was such a wonderful thing that railroad men could hardly believe their eyes when they saw trains stopped quickly without any visible agency, it was scarcely adequate for the service required even in 1869.

Three years later Westinghouse brought out the triple-valve which made the air-brake automatic. Twenty-five seconds were required to set the brakes on a ten-car train with straight air; the triple-valve did it in eight seconds. The automatic feature introduced a factor of safety that had had not been thought attainable.

But eight seconds was altogether too long a time, as the Burlington brake trials, in 1886, demonstrated. Westinghouse thereupon invented the quick-action valve which cut the time required to set *all* the brakes on a fifty-car train to three seconds. Railroad men who had been astonished to see trains stopped by the invisible power of the straight-air brake were almost incredulous when they saw a train of fifty cars running forty miles an hour brought to a standstill in a distance of six hundred feet.

Old Device Soon Outgrown.

Car and locomotive builders were so prompt in developing equipment up to the enlarged limits afforded by the quick-action air-brake that the device was soon outgrown. So Westinghouse, with the aid of the brilliant engineering staff he had gathered around him, brought out the high-speed brake, followed by a series of refinements that has been continued up to the present day.

After the high-speed valve came an entirely new triple-valve, known as the "R." The feature of this improvement was the graduated release, which provided for more flexible operation. It was much more simple. Instead of being attached to a pipe by itself, it was pipeless. All the pipes were in the brake cylinder-head, where they could be cleaned without putting the car-repairers to the trouble of breaking joints and probably leaving a leak that would cause serious trouble on the road.

Even this was soon outgrown and was replaced with "type LN" which took the place of both R and the high-speed. Type LN was a big advance over all other brakes. It afforded much greater uniformity in brake-pressure and shortened stops. An emergency application at seventy miles an hour brought a train to a standstill

in 1,790 feet. With the R type the train would have run 2,146 feet, a reduction of sixteen per cent. With the new brake the train equipped with the high-speed or type R brake would have been running thirty-two miles an hour, or 1,790 feet. This is ample to cause serious disaster.

The feature of the LN type was the rapid recharging of the auxiliary reservoir accomplished by providing a supplementary reservoir on the car. A large part of the air for recharging came from this supplementary reservoir. This allowed brake-pipe pressure to rise rapidly throughout the train, regardless of its length, which was a very important feature, as it allowed a rapid succession of applications of the brakes when necessary.

The most important gain was the great increase in emergency power. The high-speed and R brakes afforded for emergency use an increase of twenty per cent over service power, while the LN provided an increase of sixty-six per cent.

Devised Wonderful Valve.

Yet this did not last long. Something more was needed for the tremendously heavy trains at ever-increasing speed. The air-brake folk and the railroad men got together to thresh the subject out. In 1909 a series of tests was carried out at Toledo, and what was needed was determined.

The Toledo tests led to another great advance. This was the evolution of the "PC" (passenger control) type. In this radical departure each car was provided with two brake cylinders, each with its own supplementary reservoir in addition to the usual auxiliary reservoir. Thus each car had two brake cylinders and three reservoirs. In ordinary service applications of the brakes, one cylinder was used; in an emergency application both were used, both being connected with one set of brake rigging.

The notable feature which made possible the effective utilization of all this extra apparatus was the control valve, a wonderful apparatus. In service applications it gave the engineer much more flexible control of the train with more uniform brake-pressure, thus reducing surging of the train and the resultant flat wheels. Surging is not popular with the passengers. An emphatic surge is likely to project a sleeping passenger soundly against the partition.

The emergency portion of the control valve is separate and distinct from other parts, so that the quick action which the engineer sometimes caused when he didn't want it, is largely eliminated. In entering a busy terminal the engineer sometimes has to make a number of service applications of the brakes in quick succession. Formerly if he did this he was unprepared for an emergency.

Always Ready for Emergency.

The control valve is always ready to respond to an emergency no matter how many service applications have been made. The control is always on guard, so that if the brake-pipe pressure falls below a certain point, either by leakage or otherwise, the emergency goes on automatically. The emergency reservoir was a busy bit of apparatus, for it helped to recharge the service reservoir and also afforded the graduated release. In an emergency application both cylinders and both reservoirs were connected.

The progress made can be understood when it is said that a train equipped with the old high-speed brake running at sixty miles an hour could be brought to a standstill in 1,700 feet, while the PC equipment could stop the same train at the same speed in 1,100 feet. The high-speed equipment provided a maximum braking power of 116 per cent of the nominal capacity of the car in four seconds, which was reduced automatically to 90 per cent by the blowing off of pressure through the reducing valve.

The PC equipment gives 180 per

cent of nominal braking power within two and nine-tenths seconds. Seconds are precious on a railroad. A train running sixty miles an hour moves eighty-eight feet in one second, and that distance sometimes constitutes the difference between safety and disaster.

Improvements in the air-brake follow each other rapidly. The PC equipment was supplemented by type "UC" (universal control). No radical changes in design were provided, but there were numerous refinements of detail which rendered the brake still more effective.

Electricity the Final Touch.

The final touch was the introduction of the electro-pneumatic type, which is the UC with electric operation. The interesting thing about the electro-pneumatic brake is that the Westinghouse people forsaw the need of it twenty-eight years ago. They have simply been waiting for the railroads to grow up to it. The introduction of the axle lighting system, which provides an electric current, has at last made possible the electro-pneumatic brake.

Absolutely simultaneous applications of all brakes on a train, regardless of its length, is made certain by the electro-pneumatic. It allows any length of train to be handled as simply and effectively as if it consisted of but one car. It is the perfection of control combined with the perfect power, indeed the only power that can be used for braking. Long ago the railroads found out that nothing could take the place of compressed air in the operation of brakes.

The electric feature is simply added to the pneumatic features to be found in all brakes. This brings to mind the wonderful fact that in all the swift progress, amounting to a complete revolution every few years, the air-brake has always been perfectly interchangeable with all preceding types still in service at the time. To achieve such a feat as this calls for engineering genius of the first magnitude.

In the electro-pneumatic brake system an electric contact is placed on top of the shaft of the engineer's valve so that it can be brought in contact with any one of three magnets—one for service application, one for emergency application, and the third for release.

In making a service application the engineer moves the valve exactly as he would in using the ordinary brake. In fact, the brake would apply in the usual way by permitting air to escape from the brake-pipe just as it did before electricity was introduced. But air moves comparatively slowly, while electricity is practically instantaneous.

As soon as the contact touches the magnet it is energized, and a current flows to a valve on the brake-pipe of each car. A magnet attached to this valve is energized and pulls the valve from a port allowing air to escape from the brake-pipe. As this takes place simultaneously on each car in the train, the application of all brakes takes place at once.

The electric brake-valve being identical with the standard pneumatic valve the engineer knows instantly if the electric part of the system isn't working, for a failure of the magnet on any car makes the brake-valve tell tales in the cab.

The engineer needn't worry if the electricity does fail, because the brakes will operate in the familiar way without the additional motion of a muscle by the engineer.

The only difference is that he will be delayed a couple of seconds in doing what otherwise would have been done instantaneously.

To summarize the new features of the air-brake—first, the maximum braking force is secured in the shortest possible time, and so is effective in reducing speed in a minimum of distance; second, uniform braking force is obtained on all cars irrespective of size of equipment, thus contributing to the convenience and comfort of

passengers as well as making the brakes more reliable and more easily manipulated.

By providing ample storage reservoirs on each car loss of pressure by leakage, a point of much importance, is guarded against. By maintaining a proper margin of force between service and emergency applications the tendency to wheel-sliding is reduced without wasting air. Brakes can be graduated off as well as on, which enables the engineer to handle his train more smoothly, save time, and avoid sliding wheels.

How Stop Is Shortened.

A much higher brake-cylinder pressure is obtained in an emergency stop and this pressure is maintained during complete stop, thus shortening the stop. In the high-speed brake the maximum pressure at the beginning of the application was automatically reduced. Automatic emergency application of the brakes when the pressure in the brake-pipe falls below a certain amount is a safety feature of great value, because it stops the train if the air supply is below the danger point.

Another safety feature of the first magnitude is that full emergency braking power is available at all times, regardless of the number of service applications that may have been made. The full stopping power is always at hand. The separation of service and emergency features gives the necessary flexibility of service use without in any way impairing the emergency feature or giving too quick action when it isn't wanted.

So much for passenger equipment. The freight equipment has features of no less moment. As freight-trains increased in length from thirty cars to fifty, then to seventy-five, then to 100 and 150, the distance the air had to travel to reach the exhaust at the brake-valve, the friction in the pipe and the volume of air to be handled caused pressure to reduce so slowly that many brakes did not apply at all.

Brakes would be fully applied at the head-end of the train so long before those at the rear that the slack ran up, often with the effect of a collision. With the introduction of the quick-action valve the engineer, once he made an application, had to come to a complete stop. This would not do at all, so the air-brake experts had to devise means to provide uniform release and recharge. Careful investigation showed that ninety per cent of flat wheels were due to failure to release promptly after a stop and not to sliding during a stop.

The time required to make a service application on a train of seventy-five cars was cut in half through the ingenious expedient of making a local reduction of brake-pipe pressure on each car by taking some of the air from the pipe directly into the brake-cylinder, thus starting the operation of the triple-valve on the next car. The air introduced into the brake-cylinder helped to move the piston quickly beyond the leakage groove and also forced the packing leather against the walls of the cylinder.

Controlling Loaded Cars.

A very light reduction resulted in complete, effective and uniform application of the brakes throughout the train regardless of its length, instead of ceasing midway or skipping cars as did the earlier brake.

But the most notable improvement in the freight brake was in taking care of loaded cars. Not only did the problem of handling the heavier cars on grades become more serious, but the unequal breaking force of the older types of brakes caused trouble in making a stop on the level.

An engineer once refused to pull out with his train because five empty cars next the engine had been made up ahead of twenty-seven loads of coal. When the yardmaster demanded the reason, the engineer replied:

"I consider my life worth more than all those cars. If I should have to

make an emergency application I do not want those old empties climbing into the cab after me."

That is, perhaps, what would have happened, as the yardmaster knew, so he switched the empties behind. With the old brake the empty car which had sixty per cent braking power had but sixteen per cent when loaded. Thus, the loads and the empties had a tendency to stop at different rates, which caused draw-bar strains, breaks, damage to lading and equipment.

The introduction of the empty and load brake changed all this. While the empty still has sixty per cent of braking power the same car loaded now has forty per cent of braking power instead of only sixteen. This is near enough to uniformity to allow smooth handling and prevent breaks and other damage. It also allows fairly high speed and, what is highly important, insures safe handling on grades.

Force Accelerated on Grades.

The accelerating force due to a grade is twenty pounds per ton per cent of grade. Thus, on a 2.3 per cent grade the accelerating force would be forty-six pounds per ton. An empty car of 54,000 pounds with sixty per cent braking force, after making all allowances, would have, say, 115 pounds per ton, ample for safe control, or stop on the grade.

Put a full load on that car with the same braking power, and making the same allowances, the brakes would only have two-thirds of the force necessary to prevent the car from gaining headway. In other words, there would be a runaway. The only way to avoid it would be to make up the train with empties enough to furnish braking power, or else club the brakes, which isn't considered good practise these days.

But the empty and load brake avoids these difficulties by providing more than twice the braking power required to hold the speed down, and enough of a margin to allow a stop in 477 feet on the grade while running twenty miles an hour.

The average five-car passenger-train of thirty years ago running at thirty-five miles an hour developed an energy of 9,800,000 foot pounds which had to be dissipated by the brakes before the train could be stopped. The average train to-day, consisting of twelve steel cars weighing 150,000 pounds each drawn by two locomotives at sixty miles an hour develops an energy of 373,086,394 foot pounds—thirty-eight times the energy of the old train.

Easily Controls Terrific Power.

The modern air-brake controls this terrific energy more effectively than the old air-brake controlled the lighter train of former days. In making such a stop each of twelve brake shoes on a car would have to absorb seventy-five thousand foot pounds of energy per second for twenty seconds. The work of the brake shoes is so severe that two shoes are provided to each wheel, constituting the clasp brake.

If a train of 920 tons were equipped with brake of the 1890 type, it could not be stopped when running sixty miles an hour in less than 1,760 feet. At the thousand foot mark it would still be moving at forty-three miles an hour, with a collision energy of 114,000,000 foot pounds.

The same train at the same speed can be brought to a full stop in less than 1,000 feet with the latest type of air-brake.

In the Pennsylvania brake tests at Absecon in 1913, the most thorough and painstaking brake tests ever made, just such a train was brought to a full stop from sixty miles an hour in 954 feet in 18.7 seconds.

Remarkable as are the contrasts of air-brake practise, past and present, the last word has not been said. The spirit of progress permeates American railroads, and progress will demand a constant refinement of equipment.

Bill Runs an Air-Buggy.

BY F. H. RICHARDSON,

Author of "Bill Gets Double-Headed," "Bill Goes to a Concert," "Bill Drinks Gasoline," "Bill Attends a Picnic," and others.

Hero of Many Weird Escapades, Bill Now Ranks as the Only Airshipwrecked Sailor in the World.

WHEN the engineer arrived Bill was busily engaged in doing nothing. He was perched on his seat-box, one foot on the boiler-head and the other propped up against the front cab-door. His countenance expressed haughty indifference as the engineer climbed into the cab, glanced at the water-glass, and unrolled his overalls in preparation for the coming flight at the head of the fast express.

"Well," remarked he of the right-hand side, "what have you been up to now? Can't I lay off one trip without you getting into all kinds of a muss?"

"Say, young feller," replied the fireman, "I'll trouble you to address me with proper respect, see! I'm chauffeur of an air-buggy now, by gimminy; an' when common, ordinary eagle eyes speak to me it's up to them to remove their lids an' make a bow. I'll admit there was a time when I was willin' to be familiar with engineers an' other ginks, but bein' an aviator makes a lot of difference."

The engineer laughed heartily before replying.

"Yes," said he, "from what I've heard I guess you're a full-fledged aviator, all right."

"Betcher neck I am! I'm figgerin' on openin' a school for air-ship pilots. I'll let th' students do all th' flyin', though. It's some too exciting for yours truly."

"From what I've heard I gathered there certainly was some excitement around Hempel yesterday. I've also been told that you were reasonably busy while in the air. It has also come to me that neither the Old Man, the superintendent, or the train-despatcher exactly approved of you're laying No. 7 out a matter of thirty minutes."

"Well, what would you expect of cranks like them? Th' Old Man certainly did hand me a bundle this morning, though, an' th' super had me up on th' carpet an' set out my wedges good an' tight.

"Whoever it was told you I was busy while that flyin' stunt was bein' pulled off had th' right dope. I did more work an' made more motions an' moves in ten minutes than would plant, cultivate, an' harvest forty acres of corn. I pulled nine hundred an' seventy-three levers, kicked twice as many more an—"

"Hold on, Bill," interrupted the eagle eye. "I don't profess to know very much about an aeroplane, but I'm sure it hasn't more than a dozen levers altogether."

"Mebby so. I ain't sayin' I pulled that many separate ones, but I yanked what there was that many times—see?"

"Oh, that's the idea, is it? Well, go ahead and tell the thing in your own way. I've heard at least a dozen versions of it. What really did happen, anyhow?"

"I could tell y' what didn't happen a lot easier, an' it wouldn't take near so long, either. They say every man has a sep'rate, individual jinx. Well, mine must 'a' rode straddle of th' coal-gate last trip when he wasn't busy manufacturin' some new brand of grief for my special entertainment.

"To begin with, when you layed off I drew old Bill Hawkens for engineer. Brother Hawkens might have been a howlin' success as a man milliner, a farmer, or something like that—there's no tellin'. As an eagle eye he ain't worth two hurrahs. He's one of them ginks that ain't real happy till th' fireman's scratchin' coal down from th' back end of th' tank. If there's any one thing in all th' wide world he enjoys it's seein' th' tallow-pot get busy. Th' only thing that gives him more joy is seein' Mr. T. P. keep busy all th' time.

"If he was ever t' make a mistake an' get 'er hooked up back of eight inches he'd believe he was losin' his mind. I'll give him credit for one thing, though. He can blow away more steam whistlin' for road crossings than you can, an' that's some performance, lemme tell you.

"Well, we caught No. 7 on th' return trip. There wasn't much of anything happened until we got to Wellsville.

"I've got a piperino of a girl there. I dunno who she is, but we're gettin' real chummy. She waves at me most every trip, an' sometimes she comes down to th' depot an' sets on a baggage truck just a little ways from th' engine.

"There was a big crowd at th' depot when we pulled in, an' I wondered what all th' excitement was about. My girl was there, an' th' baggage truck bein' already full of sitters, she stood on th' platform right beside where th' engine stopped.

"I asked her what was doin', an' she said one of them aeroplane things was due to pass over there soon. She an' me was so busy chinnin' that I didn't catch Fatty Jones's signal to pull out, an' he nearly busted his suspenders callin' me down.

"Durn his pink-whiskered mug, anyhow! Some of these days I'm goin' to have my opinion of him printed an' send it to him by mail. Believe me, he'll bite a chunk out of a telegraph-pole when he reads it.

"Well, we pulled out after Pinkey got done shootin' off his mouth. We hadn't gone but about two miles when I noticed a funny lookin' shadow skimmin' along th' ground beside th' engine. I looked up, an' there was a crazy lookin' dingus shootin' through the air over th' train. Hawkens saw it about th' same time I did an' come near twistin' his neck off, rubberin'.

"It was goin' just about as fast as th' train was, an' sure was a swell sight.

"The eagle eye of th' cloud-climber saw us watchin' him an' started to do some fancy stunts. He'd circle all around th' train. He'd go way up an' then come shootin' down till I was 'most afraid he'd knock th' smoke-stack off th' engine. Once he sailed along in front, about fifty feet above th' track, for nearly half a mile.

"Old Hawkens got so excited he bit th' stem of his pipe in two. It mighty near broke his heart. He'd only had that nose-warmer three years, he said, an' to think of it bein' busted by an air-ship!

"'Just goes t' show,' says he, 'the damage them new-fangled contraptions are liable to cause.'

"When we got a couple of miles from Hempel th' bird feller opened her up an' sailed on ahead. We watched him circle around an' finally go down out of sight behind some trees.

"'Guess he's lighted,' says Hawkens.

"Sure enough, when we pulled into Hempel an' stopped, there th' thing

was in th' middle of a big, open place to th' left of th' track, an' about five hundred yards away.

"Hempel is th' meeting-place for No. 12 an' No. 7, so we'd headed in on th' siding an' stopped opposite th' depot. Pretty soon th' con come trottin' over, an' said No. 12 was thirty minutes late an' we couldn't get anything against her, so we'd have to lay there.

"About six inches of snow had fallen th' night before. It was beginning to get tolerably warm, but none of it had melted yet. You know it slopes down away from th' track at Hempel, makin' quite a steep hill for two or three hundred yards. Beyond that is a big, level field.

"Th' kids had been usin' th' hill for a coasting-place before th' aeroplane contraption hove in sight, but they wasn't one of 'em slidin' then. About ninety-nine an' a half per cent of th' population was lined up at th' foot of th' slope, watchin' th' doin's. Th' town marshal had appointed a lot of deputies, an' they had pushed th' crowd back to th' foot of th' hill.

"'Me for th' air-buggy,' says I when th' con delivered his lay-there-half-an-hour information.

"'Better stay here," says Hawkens. 'You can't get inside th' lines, an' you can see just as well from th' cab window, anyhow."

"But that didn't suit Willie. A closer view for mine. So I started down th' hill on a run.

"I started down that slide in a hurry. Then I got in some more of a hurry. By th' time I reached th' foot of th' hill I was travelin' thirty-seven miles an hour, an' still gainin'. I'll bet I'd 'a' punched a hole through a brick wall, th' way I was goin'.

"I hadn't taken more than half a dozen steps when something happened to my feet. Mebby they wanted t' get a look at th' flyin' thing themselves. Anyhow, up in th' air they went, real high. Not havin' anything much left to stand on, I concluded to set down.

"I'll bet you could see th' dent I made in that frozen bank yet. An' then my overalls seemed to get th' idea they was some kind of a new-fangled sled an' started for th' foot of th' hill, me inside of 'em.

"At th' foot of th' slope th' crowd was lined up four deep, all lookin' at th' air-ship, not aware of th' fact that an imitation comet was headed in their direction, due to arrive in three an' a half seconds.

"One girl started to run across th' slide, back of th' crowd, just as I made my début on th' scene. Honest, I'm feelin' sorry for her yet. She went up in th' air, turned two somersaults, an' lit behind me with a grunt that sounded like somethin' hurt her. I just kept right on, hit th' crowd, an' went through 'em like a snow-plow.

"There was a bunch of squeals from th' female contingent, mixed with pointed remarks from th' men, an' then th' whole works, for about ten feet both ways, sat down. I'll bet they jarred every building in th' town.

"One of th' deputies, with a star on him as big as a steam-gage, stood right in front of where I come through. Instead of gettin' out of th' way, he made a jump to stop me. He had a fat chance—I don't think!

"He made a grab for me, an' I went between his legs. There wasn't room to clear, an' he got his all right. I shouldn't wonder if he's turnin' pinwheels yet.

"Well, I finally stopped right close to th' air thing. Th' eagle eye was monkeyin' with some of th' wires. He looked up an' says: 'Hello, old man! In something of a hurry, ain't you?'

"'Nope,' says I, after I'd concluded I was all there except a few buttons. 'That's th' way I always come in.'

"He laughed an' says: 'You're all right. Fireman of th' train, ain't you?'

"'I was,' says I; 'but now I'm champion short-distance, high-speed slider.'

"'You're some slider, all right,'

says he. 'I thought you was a runaway sky-rocket when you come in sight.'

"An' then we got real chummy. He told me he was waitin' for gasoline an' that a chap had gone to th' store to get it. He said he was goin' to start again as soon as it come, an' was keepin' th' engine running along slow so it wouldn't get cold.

"We talked a few moments, an' then he asked if I'd stay an' watch things while he run over to th' store an' hurried th' gasoline up. I had twenty minutes yet, so I said I would, an' off he went.

"I put in a few minutes gawkin' at th' gasoline bird, wonderin' how anybody could be crack-brained enough to get more'n six inches away from the ground in such a shaky-lookin' arrangement.

"After I'd looked it all over a fool notion struck me to climb into th' seat, just so I could say I'd been in an aeroplane.

"Say, it's funny what an absolute chump a smart chap will make of himself sometimes, ain't it?"

"You being a shining example of the 'bright chap,'" I suppose, remarked the engineer.

"I didn't say so; but, at that, I guess Willie ain't no candidate for th' foolish house—only mebby once in a while. It's a wonder I'm not, though, considerin' who I'm obliged to 'sociate with," and Bill glared at his chief, got the fire-hook down and spread the fire, threw in a few shovels of coal, and then climbed up on his seat-box in dignified silence.

"Come, now, old man, I didn't mean anything. Go on with the yarn," said the eagle eye.

"Mebby you did an' mebby you didn't. Anyhow, you're gettin' too blamed flip for a common, ordinary throttle-pusher. You never flew an areodingus, did you—huh? What do you know about air-pockets an' eddies an' currents? I know 'em all. I've shook hands with 'em, patted 'em on th' back, an' examined their teeth. I've knocked th' northwest corner off one cloud an' bit a chunk out of th' middle of another, an' still you want to talk to me like you was my equal!"

Again the engineer refused to take offense, and presently Bill continued:

"Well, as I was sayin' when you butted in, I took a fool notion to climb into th' contrivance, not knowin' it was loaded an' liable to go off.

"I rubbered all around to see if anybody was likely to interfere. The constables were busy shooin' th' populace back an' th' engineer feller was still in th' store. 'Here's my chance,' says I to myself, an' made a stab at gettin' into—"

"Trouble," contributed the eagle eye.

"That's one time your conversation contained sixteen ounces of sense to th' pound. There was a ring of trouble semaphores clear around me, every one of 'em up. There was a separate, individual jinx hangin' to every wire of that machine, an' half a dozen on its roof. But I got into th' seat without seein' 'em.

"Several of the constables looked my way an' seemed t' have a notion of callin' me down; but they knew th' chauffeur chap had left me there, an' concluded it must be all right.

"I'd been sitting in th' seat mebby a couple of minutes, as proud as you please, when I heard a yelp. I looked around an' saw th' flyin' chap runnin' across th' field toward me, wavin' his arms an' makin' remarks that I had a hunch were aimed at me. Time to get off, thinks I, an' started to do it.

"I don't know exactly what did happen. I must have bumped th' throttle of th' engine, I guess. Anyhow, there was a rumble, a bunch of snorts an' a noise like a Gatlin' gun in action, an' Mr. Engine proceeded to get real busy. A jerk tipped me back into th' seat as th' bundle of canvas-covered unadulterated orneryness started to go somewhere.

"I was too s'prised to do anything

but set there with my mouth open an' hang on. Bumpety bump! it went across th' field, tipping first to one side an' then to th' other until I thought sure th' whole works 'u'd upset an' spill Willie out.

"It didn't take long for me to conclude it was up to me to do something unless I wanted to land in a hospital. 'Get 'er stopped,' was th' first idea that popped into my mind. Th' trouble was, though, I didn't know where th' air-brake handle was. There were handles enough, all right, all right, but which one spelled 'stop,' an' which one meant some crazier thing that was already bein' pulled off?

"Like as not, th' first thing I'd touch 'u'd set that big bunch of cast-iron, miscalled an engine, performin' more bug-house than it already was; but something had t' be done, that was a cinch, an' done real sudden, too. So I grabbed one of th' handles. I meant to give it just a little pull, but th' thing give a bounce just then, an' I yanked it clear out. I'd expected t' get some kind of result, anyhow. I got th' result, all right, an' got it in bucketfuls, too.

"That crazy-house bunch of canvas an' wires tipped its nose into th' air an' started for th' bright, blue sky right then an' there. Th' ground began to drop, an', cold as it was, I'll bet I sweat two gallons in th' next three minutes.

"'*Bangety bang, b-r-r-r, bangety bang!*" was th' language th' engine spoke. It was as industrious as though laborin' in a good cause. Th' air whistled past me an' th' earth was fallin' down a well. It just kept right on climbin', regardless of my feelings. It didn't take me long to see that if I kept on in that direction I was due to eat supper with th' gentleman in th' moon, an' sleep in his best room that night, providin' I didn't run out of gasoline or something an' start the other way too sudden.

"I looked down an' saw how far it was to th' good old United States. I remembered how hard I hit th' ground just fallin' two feet on th' kids' slide a while before, an' wondered if I fell two thousand would th' hurtin' be multipled by one an' three ciphers. But th' farther I went th' harder I'd light, thinks I. Anyhow, I might as well die then as to keep on and mebby develop into a durn'd ole comet with a tail seven miles long.

"So I shoved in th' lever I'd pulled out an' took a twist at a wheel for luck. Th' thing bucked up behind an' made one or two false moves, an' then I guess I got excited. Anyhow, I pulled an' kicked levers an' turned wheels so fast for th' next few minutes that their joints nearly began to smoke from friction."

"I guess you were pretty badly scared, eh, Bill?" asked the eagle eye.

"Scared? Now, what in the world put that into your head, I'd like to know? I had th' choice of smearin' myself over a ten-acre lot or keepin' that freak gasoline cloud-pusher goin' till I died of old age. What was there to get scared about, huh?

"That air-buggy did about everything an aeroplane is supposed to be capable of doin' during th' next three minutes, believe me! It 'u'd stand on its head an' then walk around on th' tip of its tail. It 'u'd lean 'way over, first to one side an' then to th' other. It made circles an' half-circles, an' did a one-step.

"If I hadn't got tired pullin' levers an' twistin' wheels I'd 'a' had th' thing going through a Virginia reel in just one minute more.

"Finally I saw th' ground was gettin' real close an' made up my mind it was all over but th' mournin', so I shut my eyes, grabbed th' sides of th' seat with both hands, an' hung tight for th' big show.

"But there wasn't anything happened. After mebby half a minute, which seemed like eleven hours, I got tired of waitin' to be smashed up into scrap an' opened my eyes again. Would you believe it, I'd got that

durn'd areodingus scared stiff. It was feedin' right out of my hand, so t' speak, sailin' along as nice an' level as you please about fifty feet from th' ground.

"In th' mix-up I'd crossed th' railroad tracks an' turned around. I was headed straight toward th' depot again. I could see this ole coffee-mill of an engine on th' side-track an' Hawkens leanin' out of th' cab window, his neck stretched till it looked like a rope. No. 12 was standin' at th' depot. Scattered around were the passengers from both trains an' most of th' population of th' city of Hemple. They seemed real interested an' excited, too.

"Old Pink Whiskers, th' con, was jumpin' about th' depot platform, floppin' his arms up an' down like th' wings of a bird. Blamed if I don't believe th' chump was givin' me signals t' stop!

"Stop! I'd 'a' give my best pair of galluses to 'a' known how to do it without punchin' a hole in th' landscape. It's bad luck to muss up th' ground with an air-ship. If it had 'a' been this ole mill I'd 'a' been wise. I'd just open th' sand, put on th' air, an'—there you are.

"But I didn't know how to shut that foolish-lookin' engine-thing off, an' if I did I'd be likely to wish I hadn't. As for droppin' sand an' puttin' on th' air on an aeroplane—oh, fudge!

"Nope. I was travelin', an' seemed likely to keep right on till th' wheels wore out or something happened.

"I passed right over th' engine an' heard Hawkens yell, 'Keep it up, Bill; you're doin' fine!' I'd 'a' liked to 'a' had a chunk of coal to heave at him! 'Keep it up!' 'Bring it down!' 'u'd 'a' sounded better.

"After I'd passed th' depot a ways I got th' first real idea I'd had since th' show begun. If that lever I pulled first started 'er up, then shovin' it th' other way ought to fetch th' earth toward us. I shoved it just a little. I'd had all th' sudden action I wanted, believe me. Sure enough, th' thing kicked its tail up just a little an' th' ground begun t' climb slowly.

"I was sailin' over an open field, an' saw I was goin' to come mighty close to a collision with th' top of a big tree. I got within twenty feet of th' thing, an' saw I'd just about clear its top, when th' engine gave a consumptive kind of cough an' quit on me.

"Th' air-ship thing didn't do a thing but plunk down on top of that tree like a hen settin' on a nest, an' there she stuck hard an' fast.

"As far as I could see, there wasn't a thing busted, but I was twenty or thirty feet from th' ground. It sorter entered my mind that if that air-ship pilot got there before I faded away we might have an argument. So I managed to climb down out of th' thing an' through th' trees to th' ground.

"Say, I never did have anything feel quite so good as that frozen dirt. I looked up at th' flying machine spread out over th' tree for all th' world like a settin' hen, raised both hands, and remarked, 'Never again!' Then I started drillin' back toward th' depot.

"But th' show wasn't over yet. I hadn't gone far when a big, red gentleman cow come out from behind a clump of bushes an' looked at me real hard. He let out a snort, bellowed a time or two, an' pawed up a couple of bushels of snow. Then he started over t' shake hands with me.

"I saw there was trouble due an' started to wiggle my legs past each other real spry. For th' next three hundred yards or so I didn't touch anything but th' high spots, an' I wished I could skip them, too. I tell you, it's some sensation playin' first section to a gentleman cow who's tryin' t' couple on behind an' double-head you.

"I might have stopped an' tried to reason things with him, but when I looked over my shoulder I could see it wasn't any use. His tail was stick-

in' straight up like a flagpole; his head was down an' his back humped up in th' middle.

"No use, thinks I, an' opened up my throttle a little more.

"Right ahead I could see th' ground sloped down. I couldn't see how steep it was, an' as th' second section was gettin' real close there was no time to slow up an' investigate, so I kept on a lope right up to th' edge.

"It was th' top of a bank a couple of hundred feet long, covered with hard snow an' slick as glass. At th' foot was a big pond an' a lot of men cuttin' ice to fill an ice-house that stood on th' other side. They had it all cut out right up close to th' bank on my side.

"I couldn't stop if I'd 'a' wanted to, an' I didn't want to, anyhow. So I went down that slide like a galvanized streak an' shot onto th' fringe of ice on the' pond, ker-plunk! into th' drink.

"Wow! That water was ninety-seven degrees below zero! It was so cold that th' chunk of ice I grabbed when I come up actually felt warm.

"I climbed onto th' block of ice, an' there I was twenty feet from anything solid, floatin' around like a shipwrecked mariner in th' Arctic Ocean.

"Say, I'll bet you never heard of an airshipwrecked sailor before? Well, I'm th' only an' original.

"Mr. He-Cow Beast stood at th' top of th' bank shakin' his head like he was inviting me to come out an' be properly licked; but I couldn't see it that way. The ice-cutters finally fished me out, shooed off th' animal, an' I made tracks for th' train.

"No more aeroplanes for mine! One time is some too many. I'm d-o-n-e! Firing is plenty strenuous an' excitin' for Willie in future."

And Bill proceeded to fill the oil-cans and make ready for the run.

FLIER MAKES 178 MILES IN 194 MINUTES.

As the German railways with one or two unimportant exceptions are in the hands of the government, the time-tables are put together without any attempt to secure record-breaking runs and quite uninfluenced by competition.

The longest non-stop run in the world still remains that from London to Plymouth, a stretch of 363 kilometers. A kilometer is approximately five-eighths of a mile. It is well known, however, that this run is merely the outcome of the competition of two rival lines. The record run on the German railways is that accomplished between Berlin and Hamburg, a distance of 286.8 kilometers, or 178.25 miles, which is covered, with only one stop, in 194 minutes. This run beats all German records.

The best previous time was made by the express running between Munich and Nurnberg, which covered the whole distance between these points, without any stop, at an average speed of 88.3 kilometers in the hour, says *Express Gazette*. During the last ten years the number of non-stop runs exceeding 150 kilometers in length has enormously increased.

German railways can already boast of twenty-five such runs; among these may be quoted the journey from Berlin to Liegnitz in Silesia, a distance of 254 kilometers, and the run from Berlin to Hanover, a distance of 264 kilometers. Furthermore, there is a very excellent train service uniting Berlin with the various watering-places on the shores of the Baltic, and also joining the capital with Dresden, Leipzig and Halle. In all these cases the train runs without any scheduled stop.

This is the more remarkable when we bear in mind that ten years ago there was no such thing as a non-stop run of over 150 kilometers. The first journey of this kind was that between Munich and Nurnberg, which long remained without a rival.

The railways have been systematically working to bring the express train service in Germany thoroughly up-to-date. As soon as the series of tunnels in the neighborhood of Bebra and Elm are completed, one of the principal German main lines will be able to accomplish more in this direction. So far, all trains, running along the principal German line from east to west, between Berlin and Frankfort have had to stop at Bebra and Elm, but as soon as the new tunnels are completed a record through run between Berlin and Frankfort will be brought about.

FAMOUS TRAIN ROBBERS.

JACK KENNEDY, THE SILENT OUTLAW.

"He Had More Brains Than Any Man I Ever Met," Said a Noted Kansas Jurist of Kennedy, Accused of Killing Twelve Men and Leading a Gang That Robbed Trains of Over $500,000.

BY CHARLTON ANDREWS.

WAS Jack Kennedy the king of train-robbers? Did he kill twelve men?

Did he and his gang steal half a million dollars from the railroads in ten years?

Popular belief, based on circumstantial evidence, supported by more or less trustworthy confessions of some of his accomplices, answers all these questions in the affirmative. Sundry detectives, who knew much that they could not establish by legal proof, and who suspected a great deal more, concluded that Kennedy deserved a prison term on general principles; so they presented him, with their compliments, a sentence of seventeen years, which he served, less the usual deductions for good behavior, for a train-robbery in which he had no part. On the other hand, Kennedy, the only man who really knows the truth of the matter, denies that he was ever engaged in the train-robbing industry, or that he ever stole any money from the railroads, or that he ever killed anybody. Still, Kennedy may be modest, or discreet, or prejudiced, or something.

This much is certain: that the story of his life reads too much like frenzied fiction to seem real; that he is by far the brainiest man who ever stuck up a train; that when known facts are deducted from conjecture the net residuum leaves Kennedy in the shadow of uncertainty, the most picturesque of bandits; that, even when unusual ability is brought to the task, train-robbing does not pay.

Mark Twain would have hailed Kennedy with joy as a living exemplification of his pet theory that each man's career was determined when the first atom was created, away back at the beginning of time.

Kennedy's father was a member of the notorious Quantrell and Anderson bands of guerrillas during the Civil War, and a messmate of Cole Younger and other famous outlaws. There you have heredity.

"Famous Train Robbers" began in the RAILROAD MAN'S MAGAZINE for September, 1912. The following have appeared: Bill Anderson, the First Train Robber, September, 1912; Black Bart, the P-o-8, November, 1912; "Three-Finger" Musgrove, December, 1912; Jesse James, March, 1913; William Clark Quantrell, March, 1914. Back numbers for sale at this office.

Kennedy was born in 1870, on a farm in Jackson County, Missouri, the county in which Kansas City is situated, and the only county that hoisted the black flag during the Civil War. The James boys, whose long careers of crime had made them heroes in the eyes of a certain class, who robbed a Chicago and Alton train of forty thousand dollars in the famous Blue Cut near the Kennedy home when Jack was nine years old, were his neighbors. There you have environment.

Now, note the results.

By the time Jack Kennedy was sixteen years old Jackson County had become too tame for a youth of his breeding, so he went to Wyoming in search of a career. He was a bright, brave, big-hearted boy who quickly won the confidence and esteem of a wealthy ranchman whose employ he entered.

Life might have turned out very differently for him under other circumstances; but what can a man do when fate has stacked the cards against him?

At that time the cattle and sheep men were waging open warfare for possession of the ranges in Wyoming. One day in September, 1886, Jack was riding the range with his employer when they met a couple of sheepmen. As was usual in such cases, all hands promptly began firing.

When the smoke had drifted away Jack Kennedy was the only living creature in sight. The two sheepmen, the ranchman, and all four horses were dead.

Jack walked five miles back to the ranch, where he told the story of the tragedy to the wife and young daughter of his employer. Soon after the sheriff came and took him to Rock Springs jail on the charge of murder. Here he was frequently visited by the dead ranchman's young daughter.

A few days after Jack Kennedy's arrest, Carlos Gonzales, a Mexican, was also put in jail on the charge of cattle rustling, a much more serious crime than murder from the Wyoming point of view in those days. Carlos was not without resources. Noting the girl's frequent visits to Jack Kennedy, he cultivated that youth's acquaintance.

"Everybody is talking of that shooting," said the Mexican. "The cattlemen will do all they can for you, but the sheepmen are organizing to lynch you. They will get you surely if you stay here very long. That little gal that comes here likes you and will do anything for you. If you want to save your life send her to Cheyenne without delay for some saws. Then we can saw our way out of here; but don't say anything about me, for they are against me for stealing cattle."

The saws were produced in a day or so, and the next night both men sawed their way out of jail. They walked twelves miles to the ranch, where they found the girl sitting up, waiting for them. Good horses and firearms were ready, and, after a hasty meal, Jack and his Mexican deliverer mounted for their long flight. They were not a moment too soon, for their escape had been discovered and the sheepmen were hot on their trail.

Twelve Hundred Miles on Horseback.

There was a running fight, in which superior strategy and horseflesh won for the fugitives. Then came a ride of twelve hundred miles to old Mexico. The two stole horses and rode day and night. As the Mexican knew the trail, they made good time to the border.

Railroading was the only calling open to an American in Mexico, so Kennedy obtained a job as fireman, which he held for more than a year.

Then came the welcome news that a peace had been patched up in the cattle and sheep war; that the court dockets had been cleared of all cases arising from this war, and that it was now safe for him to return to the United States.

Accordingly Kennedy went to Houston, Texas, where he secured employment as fireman on the Southern Pa-

cific. Four years later he was set up and given a freight run out of Houston. He was a good engineer and a good mixer. He sang well, was popular with young ladies, and was welcome wherever he went. Had fate but left him alone he might have ended his days as a railroad man. As it was, his name was carried on the pay-roll of the Southern Pacific for nine years.

But in April, 1889, Bill Ryan, a member of the James gang that pulled off the famous Blue Cut robbery near Kennedy's home when the boy was only nine years old, had been pardoned by Governor Francis. Kennedy had been firing out of Houston for a year. Ryan went straight to Houston, hunted up Kennedy, and proceeded to fill the young man's head with his own peculiar ideas on the rights of property when such property was in transit by rail.

To the son of a former comrade of the James and Younger boys, brought up to regard these outlaws as heroes, Ryan's views seemed sound. The result was the formation of a partnership that lasted ten years, in which Kennedy did most of the thinking as Ryan did all the talking about it afterward.

The first venture of the firm of Ryan and Kennedy was to hold up a train on the Texas Central a few months after the older man reached the Lone Star State. Kennedy laid off for a few days, then returned to his job as fireman after the robbery. His share in it was not suspected till years afterward. This first exploit resulted in such a good haul that the pair tried it again, this time on the Southern Pacific near Lancaster, Texas. The third hold-up with which they were charged was on the International and Great Northern, in 1891.

Took $48,000 from One Train.

Everything went off so smoothly, the danger seemed so slight and the reward so large that the men decided to make a business of train robbing. To avert suspicion, however, Kennedy resolved to hold his job as fireman. On their next venture, in the spring of 1891, they took in two others, as the hold-up was to be some distance from headquarters in a strange country.

They held up a train on the Louisville and Nashville, in Tennessee, securing forty-eight thousand dollars. This exploit came near being their last, for pursuit was prompt and vigorous. Several times they were surrounded and only escaped by desperate fighting.

No fewer than eight of the pursuers were killed in these fights.

Of the four men in the gang only three reached Texas alive. The body of the fourth man was never found, and no one but Kennedy and Ryan knew who he was. It is known, though, that one of Kennedy's intimate friends, a conductor running out of Houston, disappeared at the time and was never heard of after.

His widow left Texas soon after the robbery and returned to her father's home in Illinois, where she was visited several times by Kennedy. With his advice the widow's father bought a ten-thousand-dollar farm for her infant son. As the old man had never seen that much money before in his life, it was believed that the farm was purchased with the dead conductor's share of the Louisville and Nashville robbery proceeds.

Another result of this raid, which came so near ending in disaster for all hands, was that the firm of Ryan and Kennedy became Kennedy, Ryan and Co.

Ryan, old hand as he was at the game, acknowledged that the younger man was his superior as a strategist. Things looked so squally that Ryan went to California for his health, while Kennedy attended to his business as fireman so seduously that he was soon promoted.

Bill Anderson, a Kentuckian, who had been admitted to the bar but got into trouble and was outlawed, was the

other surviving member of the firm. He went into seclusion.

Marshal Befriended Him.

Between runs Jack Kennedy contrived to post himself on the movement of currency over Texas roads. In the fall of 1894 two men bearing a remarkable resemblance to Kennedy and Anderson held up a Texas Pacific train between Marshall and Longview, and robbed the express-car of a large sum, though the exact amount was never divulged by the express company. Ryan was still in California. On hearing of the great success of his former partner, he lost no time in getting back to the scene of action.

A few months later the three held up a train on the "Katy" near Wagoner, Indian Territory, obtaining the neat sum of forty thousand dollars. They rode straight across country to Tulsa, a distance of thirty miles. They reached the home of Burrell Cox, the United States marshal, at dawn. Dismounting, Kennedy strode to the door and knocked. A window was opened and a sleepy voice inquired:

"Who's there?"

"Your old friend, Kennedy. We've just stuck up a train on the Katy. It's your cue to get busy. And say, we're starving to death."

"What's that? Say, you ought to be ashamed of yourself making so much trouble for your friends when I've got all I can 'tend to, anyway. Come along in, and the folks will get some breakfast for you. I s'pose I'll have to organize a posse and get after you. Which way did you say them rascally highwaymen went?"

While the grumbling marshal made hasty preparations for a long and fruitless search for the highwaymen, his wife bustled about getting a hot breakfast for the tired gang. They ate heartily, had a good rest after the night's exertions, and then proceeded on their way.

Cox and Kennedy were warm friends. Whenever duty called the marshal in pursuit of his friend he always was careful to give due notice so that nothing embarrassing might occur to mar their friendship.

Two years after the robbery on the Katy, Kennedy decided to return to his old home. His childish memories of the exploit of the James gang at the Old Blue Cut so fascinated him that he wanted to try his hand at the same place.

On the evening of October 23, 1896, the Chicago and Alton train from Chicago, due at Kansas City at 6.30 P.M., was stopped in the Blue Cut by a red flag.

The moment the engineer had brought his train to a standstill four masked men armed with rifles sprang aboard and ordered the engineer and fireman back to the express-car, where the engineer was told to break open the express safe.

Stimulated by the rifles, he performed the job with neatness and despatch. It was scarcely worth the effort, for the safe contained only three hundred dollars and some jewelry—hardly enough to pay expenses.

It was a very businesslike affair. No shots were fired and no passengers were molested. In fact, no one but the train-crew knew that anything unusual was going on until the train reached Kansas City, a few minutes late.

Kennedy Meets Madge Rolston.

Events soon convinced Kennedy that he had made a mistake in returning to his old home. After the Blue Cut affair Kennedy and Anderson appeared in public as usual, though Ryan remained under cover. Kennedy called on his old neighbor, Sam Rolston, father-in-law of Frank James, who lived two miles west of Independence, a short distance from the Blue Cut.

He found a young lady who was visiting Madge Rolston, Sam's daughter, so fascinating that he called again

—and then again. Anderson accompanied him on one of these trips. Anderson was a man of engaging manners, a good talker, and an entertaining companion. Miss Rolston fell madly in love with him at once.

Scenting danger, Kennedy and Anderson discontinued their calls when they saw how things were going. Instead of mending matters, this only made them worse, for Miss Rolston was furious at being slighted. She soon found means for revenge.

Blue Cut a Favorite Spot.

Two months to a day after their first unprofitable venture in the Blue Cut, Kennedy, Anderson, and Ryan decided to try their luck again in the same spot. As Kennedy and Ryan were on their way to the scene in the afternoon of December 23, they met Madge Rolston on the old Santa Fe trail three miles south of Independence. Kennedy recognized her, but Ryan did not. She recognized Kennedy and got a good look at Ryan. Anderson traveled to the rendezvous by a different route.

It was a bitter cold evening as the three met, hitched their horses, and walked down to the cut. Kennedy was plainly worried.

"He called Anderson and I together," said Ryan, in telling the story, "and said: 'When we finish this job to-night and get away with the money I want you and Bill to leave town at once. We met Madge Rolston this evening as we came down here.'

"'How could she tell who we were with our coat-collars turned up?" I asked.

"'She is the kind of woman who can tell a man as far as she can see him. She went hog wild over Anderson, and now she is furious because I made him quit her. I was afraid of her, for she is one of the kind that wants to know it all. As soon as she reads in the papers about this job she will put this and that together and blab the whole affair.'"

The Chicago and Alton train leaving Kansas City at 8.45 P.M. for Chicago was flagged as usual at the Blue Cut. By this time hold-ups in Blue Cut had become so frequent that the engineers knew just what to do. So when two masked men climbed into the cab, Engineer B. V. Meade set out to handle the situation in a way that would result in the least possible delay to the train.

It was mean of Kennedy to betray his confidence as he did; but that is getting ahead of the story.

As usual, the engine-crew was ordered to cut off the baggage and express cars and pull ahead a bit. Conductor Nichols stepped down just in time to see the front end of his train disappearing in the darkness. He knew that was his cue to hoof it back to Independence and give the alarm, so he set out on his two-mile journey without delay.

Express Messenger A. J. Frier promptly opened the door when ordered, only to look into the muzzle of a shotgun. He was pulled from the car and asked if he had any money. He was too frightened to speak, so he was pitched bodily back into the car. One man took from him the keys to the way safe, while another man with a businesslike air threw down a kit of tools before the through safe, on which he began operations without delay.

"Ah-h! This is the kind of stuff we're after," said the man at the way safe, running his fingers through a bag of gold coin.

When the bandit went through the messenger's pockets the latter demurred, whereupon the highwayman threw him a two-dollar bill, telling him to buy himself a drink for a Christmas present.

Accounts differ regarding the proceeds of this robbery. The express company, as usual, made light of the affair for publication, but rumors which seemed to have good foundation placed the amount stolen at $50,000.

The gang did a very mean thing to

Engineer Meade and his fireman, considering how nicely he had acted. After they made both men get down they ran the engine a couple of miles down the track and opened the blow-off cock. When Meade and his fireman reached the old mill, after their long stumble in the darkness over a poorly ballasted track, they found her dead as a door-nail. The train was delayed five and a half hours.

Meade recognized the gang as the outlaws who had held him up on the evening of October 23. Madge Rolston played the part exactly as Kennedy had predicted. Reading about the robbery, next morning, she went straight to Independence and gave all the information she could.

A week later Kennedy was arrested in Kansas City and taken to the Midland Hotel, where he was given the third degree by Detective Burns, who had been called into the case. The detective felt convinced that he had the right man, but he could not prove it. Indeed, he failed so completely that Kennedy was acquitted at his trial in the spring of 1897.

Madge Rolston went before the grand jury and was also a witness at the trial. This estranged her friends, and, to quote her own words, "I never had a day's luck after I testified against Jack." She died insane.

Blue Cut seemed to have a fascination for Kennedy. A few months after his acquittal, October 7, 1897, the same old Chicago and Alton train, leaving Kansas City in the evening, was held up in the same old place by the same old gang, for the third time in one year. All three robberies were within fifteen miles of Kansas City.

Masked Man at Home in Cab.

The proceeds must have been disappointing, for a month later, November 12, the St. Louis fast mail on the Missouri Pacific, leaving Kansas City at 9 P.M., was stopped by a red lantern at the Chicago and Alton crossing, less than a mile from Blue Cut.

Conductor Dennis O'Brien and Brakeman McMichael promptly stepped down, and were as promptly put to work by some masked men. The baggage and express cars were cut off; then the engineer and fireman were ordered out of the cab.

One of the masked men, who seemed to be at home in a cab, took the engineer's place and ran down the track a couple of miles. On being ordered to open up, Messenger Williams threw wide the door and greeted the masked armed men with a smile.

"Step right in, gentlemen, and make yourselves at home," said he. "The place is yours. If you see any little thing that strikes your fancy, take it with my compliments. We strive to please."

The highwaymen were mystified by this unexpected cheerfulness, but they soon discovered the cause of the messenger's exuberance. The train they wanted was No. 10, which carried the valuable express matter.

But No. 10 was an hour late that evening, and No. 8, which carried nothing of any earthly use to a bandit, was running on No. 10's time. The disgust of the bandits was boundless; but there was nothing to be done about it, so they disappeared.

This was enough for Ryan and Anderson. They left the United States and, so far as is known, they have never returned. Kennedy remained in his usual haunts about Kansas City. He was suspected of both the Blue Cut robberies just described, but the best efforts of the express and railroad detectives could not muster sufficient evidence to warrant his arrest.

Robbed Car Inside City Limits.

Two men boarded the baggage car on the Pittsburgh and Gulf train leaving the Second Street station in Kansas City on the evening of December 26, 1897, a little more than a month after the Missouri Pacific fiasco. They opened the door with a key, bound and gagged the express messenger, robbed

the safe of $10,000, and jumped off inside the city limits. Kennedy was believed to have pulled off this trick with the aid of a young man living in Kansas City, but still there was no tangible evidence on which to base an arrest.

After that guards were put on all trains carrying money out of Kansas City for several months. Nothing happened till September 23, 1898, when a Missouri Pacific train was held up at Leeds, six miles south of Kansas City, by six men, who blew the express safe to little bits.

As usual, Kennedy was accused of this affair, though Detective Burns declared that Kennedy could not be held. Burns said that Kennedy never took more than two men with him, which was not correct, and that he was not the sort of blundering ignoramus to blow money and safe into uselessness. At all events, Kennedy was not arrested.

Still, it was only a question of time until they should get him — as Kennedy must have known, for he is an exceptionally intelligent man. Judge Henry, a noted jurist of Kansas City, who repeatedly held long conversations with Kennedy, paid the bandit the compliment by saying that he had more brains than any man he had ever met.

A Frisco train was held up at McComb, Missouri, in January, 1899, and, of course, Kennedy was accused. He deemed it good strategy to fight this charge in the courts; so he surrendered himself at Kansas City, and in due time was brought to trial in Wright County.

He testified in his own behalf, and underwent a cross-examination lasting sixteen hours without once contradicting himself. Judge Neville, who presided at the trial, was so convinced of his innocence that he tried persistently afterward to secure a pardon for him.

But the jury had not agreed with the judge. It brought in a verdict of guilty. Kennedy appealed, but lost; so, in January, 1900, he began a seventeen-year term in the Missouri Penitentiary, which, after deducting good behavior allowances, expired in the fall of 1912.

Fired Only When at Bay.

Those who know him best say that Jack Kennedy killed twelve men in his career as a highwayman. None of these men were killed in the commission of a crime, but only when the outlaw was surrounded and there was no other way of escape. Both Kennedy and Ryan were perfect masters of the rifle and revolver. Being sure of themselves, they never fired wantonly; only for self-protection.

In its time the gang is supposed to have captured more than half a million dollars. Even if they did this, which is doubtful, it was a pitiful return for the effort. Half a million dollars seems a large sum; but when it is divided among several men—and the gang often numbered more than three men—it is unlikely that each received more than $100,000. Distribute this sum over the ten years the gang was active and the twelve years spent in prison, and after deducting the large expenses of dodging pursuit and the larger expenses of two trials, and the annual average is only a living income. Clearly, highway robbery does not pay, even when pursued by genius.

Jack Kennedy's life story includes a romance which was blighted by his calling. Kennedy loved a beautiful, cultured girl in Louisiana, and his love was reciprocated. He might have married happily and have lived the life of a contented man, or he might have gone into business and made a fortune. He had the grace not to ask the girl to become an outlaw's bride.

But to return to Mark Twain's theory: when fate has it in for you from the time the primordial atom was created, away back yonder, before eternity began, what are you going to do about it?

Honk and Horace.

BY EMMET F. HARTE.

Our Old Friends Face a Ukase which Deprives Them of a Bit of Their Personal Liberty.

JARVIS HODGES was general superintendent at the time. Please note the use of the past tense in this connection, for, you see, Jarvis Hodges, like the little girl who got lost out of the back seat when the auto went over a bump, isn't with us any more.

It's a long story, but I'll make it short—or, at least, as short as I can.

The trouble began with the famous "tobacco order." You understand that there had been one of those periodical shake-ups all along the line of the Transcontinental system a while before, and we drew Jarvis Hodges out of the general mix-up.

His coming was a mistake for all concerned. He came West for the first time with an idea or two he must 've dug out of an archeology book that everybody and everything beyond an imaginary line drawn from Buffalo catercornerwise to Sandy Hook wore nose rings and hadn't heard of Cornwallis's surrender as yet, when, in fact, out here we're hep to all the latest wrinkles going and coming.

Oh, the new super was some wiseacre in his own estimation and a plumb autocrat of all he surveyed at the outset. Later — but we'll come to that later.

Jarvis Hodges, ex-welter-weight champion of New England, bombastic, bigoted, bossish, came to us aged forty; weight, fourteen stone; with a twenty-two caliber mentality and a forty-four caliber ego; an eye like a fish and a voice like a rasp—came into our lives and went out like a shooting star. Sizzle, boom, poof! like that. But in the mean time—

HONK AND I READ THE BULLETIN AND WEIGHED IT IN THE BALANCE.

There were things doing immediately Jarvis Hodges assumed the cares of his official position. First came a long multigraphed sermon, behooving all hands to keep their lamps trimmed and burning and to be always gingered up, for behold! the old, slipshod methods were henceforth no longer to be in vogue.

A man was to be measured strictly by a rigid and unvarying standard of efficiency. He must be fit, or quit.

All back numbers containing Honk and Horace stories for sale at this office.

And not only must every poor slave be there with the goods in a thousand places in his particular branch of the service, but he must qualify regarding innumerable other details, such as style of dress, bearing, speech, habits, associates, ideals—social, political, spiritual, and domestic—loyalty to employers, obedience, economy, zeal, quickness, singleness of purpose, sleepless enthusiasm in the performance of duty, and an absolutely insatiable appetite for work with no thought of grumbling.

Now, as everybody knows, the right to kick occasionally is one of our cherished American institutions, which was guaranteed us by the Constitution. Sometimes it seems that it's all we've left out of the original package, so if somebody frisks us of that where 'll we be? Where, indeed?

Of course, sweeping orders to tighten up on stationery, chalk, spikes, bolts, coal, water, *et cetera,* and to keep all ink-wells corked against evaporation, are sporadic reforms that overtake us periodically; but when a corporation begins to monkey with a man's personal liberty—prescribing what he shall eat, drink, wear, with whom he shall hobnob in off hours, and whom he shall pass up with a sniff of disdain—why, that's nothing short of a distinct infringement of the patent rights granted us by Messrs. G. Washington, J. Adams, and T. Jefferson.

All that, however, was a mere patch on a crazy quilt compared to what was yet to come.

The long series of petty nagging led up to a grand, final slap in the face, which broke the back of not only the camel, but the elephant, the ant-eater, the ermine, and the newt.

A drastic ukase was posted, forbidding the use of tobacco by any and all persons employed in any capacity whatsoever, anywhere on the West End of the Transcontinental's leased and operated lines.

Tobacco was taboo in any form—smoked, masticated, inhaled, taken as an infusion or rubbed on; not only during working hours, but likewise in the sacred precincts of a man's own home or club, on the street, front porch, in the back yard, coal-shed, cellar, anywhere he might hide, in fact. The penalty for disobedience was instant and unqualified dismissal.

Honk and I read the bulletin and weighed it in the balance. I snapped my fingers.

"I shall ignore the order," I announced, taking a chew and lighting my pipe.

"Let us not fly off the handle," said Honk thoughtfully. "Preserve a semblance of calmness for a space while I dissect this problem and see the inside as well as the outside of it. Viewed hastily, I'll admit that it sounds like a biff on the snoot of our inherent prerogatives, but wait.

"Lady Nicotine, like her running mate, J. Barleycorn, is a mocker. Nowhere in the history of tobacco using is there evidence that the weed exerted a beneficial effect—physically, mentally, or morally—on a single individual. A narcotic poison, it stands condemned. Physiologists are unanimously of opinion that its reaction works harm to the bodily tissues. We would all be better off without it.

"Hence—now that we've an opportunity to quit with honors, to openly repudiate the insidious siren that is sapping our vitality and holding us enchained in the shackles of an appetite that will one day gobble us up body and soul, I am for declaring our independence. You can, and probably will, do as you think best; but as for me I shall throw off the tyrant's yoke and stand a free agent before the eyes of gods and men!"

The power of his eloquence caught me in its undertow. I was swept off my feet. True, I floundered a little at first and tried to get back—er—that is, to recover my balance; but I found myself far out from shore in a twinkling. Honk is some orator when the inspiration is on him.

Under the spell of his stirring words I threw my newly purchased plug into the trash-can, broke my pipe-stem across my knee, and grasped his hand in a solemn pledge to henceforth abstain from the use of the vile weed in any form.

"Not that the habit has any particular hold on me," I made haste to say in justification of my motives. "I am a man of iron will. Nothing or nobody has any strings on me."

"Nor me, neither," said Honk. "And another thing — we're quitting because we're free-born American citizens, not because we're scared of losing our jobs."

"Ah, again you're s h o u t i n g a great truth!" I agreed fervently.

In this particular we were different from a great majority of the boys. Most of them quit tobacco because it was a case of pushiency. They thought they either had to get in line or get out. And there was more or less yowling and gnashing of teeth on the quiet.

The first day was rather exhilarating if anything; we were all keyed up with exalted determination and grim resolve. Mighty pulsations of lofty emotion thrilled us; we throbbed with the overwhelming consciousness of our strength of purpose, our indomitable will-power. We laughed and made jests one with another.

But the second and third days' gibes rang with a hollow sound, in which there was an undertone of something besides light-hearted raillery. The siren shrugged her shoulders and smiled—but she stuck around a while longer, perforce, to see the fun. Personally, I felt like my physical mechanism was running on lost motion; my storage batteries of pep seemed to have got a short circuit and gone dead.

Something had skiddooed from my mental grasp of things, and the fine fettle of life no longer beckoned to me coyly to come romp and carol in the sunshine. I snatched myself frequently out of strange fits and starts. I found myself chewing matches, pens and other odds and ends with a kind of wolfish abandon.

MY HOT BLOOD BOILED AT THE SIGHT OF SILVERY MOONLIGHT GLINTING ON THE BUSINESS END OF A RIFLE-BARREL WHICH SEEMED TO BE COMING UP THE STEPS.

THANK HEAVEN I WAS SPARED THE LIFE-LONG REMORSE, THE AWFUL GNAWING REALIZATION THAT I HAD SNUFFED OUT THE BRIGHT LIGHT OF MY GOOD FRIEND.

Train-crews passed through—some scowling, others light-headed, all chewing splinters of wood, paper wads, gum, or the rag of anathema, with a far-away look in their eyes. The Lady Nicotine purred, and, purring, slid her claws a little deeper into our exposed nerve centers. Hitherto she had been just fooling; now she began to make medicine.

Honk, aside from a preoccupied air and a slight twitching of the hands, had stood the ordeal thus far remarkably well. I went so far as to congratulate him at supper.

"You're doing fine," I said. "Quitting tobacco doesn't seem to be much trouble to you. I guess you weren't inoculated with the poison like I was. I've been eating the stuff since I was a cub of ten. Say twenty years or so, anyhow. I remember I used to visit my uncle down in Kentucky on his tobacco plantation. It was great fun watching 'em prize the big hogsheads of bright yellow leaves. Man, talk about your sweet-smelling flowers, nothing ever had the aroma of that white burley in my uncle's big, old tobacco barn—"

Honk sucked in his breath in a whistling sigh that ended in a snort. He eyed me with a glare of murderous malevolence.

"Oh, is that so?" he snarled. "Well, what do I care about your scrub relations in Kentucky or anywhere else? I've got no time or inclination to listen to your bragging. I'll bet a butter-bean you never had an uncle in Kentucky, or if you did he was poor white trash of the worst sort. You make me sick!"

"Oh, I do, do I?" I yowled in a sudden, red rush of rage. "Heaven knows I've listened to enough of your wind-jamming about your imaginary ancestors in Maryland! I reckon when it comes to family-trees, my folks weren't all prairie-dogs. Don't sit there glowering like a rat at me, either. I won't stand for it, see? I'll knock every ounce of grouch out of you if you keep on fooling with me."

"That's a man's size job, kiddo," retorted Honk balefully.

"Well, I wear a man's size shoe!" I came right back.

"You make a man's size talk, too," snarled Honk, "but mouth-fighting never hurt anybody. You never show what you advertise."

"You're a long-legged liar!" I shouted, shaking my fist under his nose. "Just say one more word and I'll fix that map of yours so it 'll have to be entirely recharted."

"Humph!" he grunted — a word, and yet not a word, either, exactly.

I slammed on my chapeau and stalked out. Honk might think that our long association together gave him a right to sit around and throw slurs, but I'd pretty quick show him his mistake.

I planned exactly where, how hard, and the number of times I'd hit him, once I got started. I worked myself into a perspiration beating his face into an unrecognizable jelly—in my mind. And, maledictions, how I craved a chew in the mean time! I ground my teeth viciously and reduced a toothpick to powder.

Honk and I met and rubbed elbows with each other all next day in silence. Each was a pent-up vial of wrath ready to burst into a raging demon at the drop of the hat. Our first real quarrel bade fair to widen into an unbridgeable breach.

Well, even the best of friends must fall out sooner or later. As I thought it over I boiled within at the realization that I'd taken my share of his sneers and covert insinuations, and never given him back a cheep. But I'd come to the jumping-off place. Patience long overtaxed ceases to be a virtue at last.

About the fourth day also the fur began to fly all along the line. A thousand things went wrong with the train service. Traffic was demoralized, trains late, engines refused to steam, precipitating hostilities between eagle-eyes and their *Fridays* who threatened to kill each other.

Shacks wrangled and delayed the game; cons railed and exchanged barbed words with station-agents; despatchers got sarcastic, and were given as good as they sent; even the meek and lowly yard men got uppish, and the terrific din of box cars, being rammed from pure peevishness, resounded over the whole of the West End.

In the passenger service travelers kept the wires hot reporting incivilities from hitherto courteous and obliging railway employees; baggage suffered from rough handling — but the least said about that the better.

It was rapidly becoming dangerous to offer the mildest kind of criticism to anybody connected with the railroad. Men of easy-going temperament were suddenly transformed into reckless and erratic irresponsibles. Eighteen took a dive into the ditch when whilom staid and circumspect Sandy Sanders ignored a "slow order" on the Horseshoe, thirty miles west of us, hitting a sharp corner at sixty per hour. Nobody was killed, but three day-coaches and a "standard" went up in smoke.

Sandy told me, as he lay tucked in his little sanitary bed here in the hospital, that he was day-dreaming about a cigar a foot long with a red, white, and blue band when the accident happened. He said the stars he saw when old 1490 struck the fence at the bottom of the fill made the national emblem complete.

One man among those whom Jarvis Hodges's tobacco ban caught hardest was Tuckahoe Jack Fotheringill, an inveterate slave of the weed. Bets were made on how long old Tuckahoe would hold out as an abstainer.

Some gave him two hours, and the maximum, at ten to one against, was two days. But days passed haphazardly into the chaotic jumble of strife and discord, gone but not forgotten, and Fotheringill, apparently unmindful of cigar or quid, grinned down upon us from the cab of the racer that pulled the Setting Sun Limited.

Day by day he seemed quite as cheerful and serenely calm as of old. Didn't even chew a splinter or anything.

"Power of mind over matter," he chuckled when he questioned him as to how he did it. "Easy as falling

off a truck, men, once you set your head to it."

The secret of his success, however, was revealed to Tuckahoe's fireman one day when a spark set fire to the big chief's jumper, burning a hole the size of a dollar through jacket, shirt, and porous-knit. The sly, old schemer had swathed about his chest and back four or five enormous leaves of the genuine "long green" which served by absorption to supply his system with the required narcotic.

Honk and I continued in our half-belligerent relations, maintaining a watchful readiness each to snap the other off at the lightest word. Necessary communication between us was accomplished by monosyllabic snarls, sniffs, and growls.

While I must confess to a certain degree of irritability, I had a cold, and felt a bit under the weather at the time. I was a frolicsome lambkin compared to the vile ill-nature of Honk. The proverbial bear with a sore coco or a setting hen with the tetter were angelic ranged alongside my one-time friend.

It was, "Where's that confounded way-bill?" or, "Who has been mussing up this desk?" Slam, bang! ! . . . ! ! !; or, "Gimme that stamp-pad, some time, will yuh? I'd like to get this ticket made out before Christmas!"

It is only fair to myself to say that I didn't let him browbeat me, not for a minute.

"Get it yourself!" I'd hiss savagely; or, "Go to the devil, and tell him I sent him a mangy snapping turtle!"

This state of affairs couldn't continue. Anybody would 've been able to foresee that. We were angry and disgruntled by day, and restless and upset by night. I tumbled and tossed in sleepless morbidity, my mind a barn-lot where hateful nightmares reared and cavorted.

One night I got up at two o'clock thinking bitterly to soothe my troubled soul with a sandwich while I sat on the observation platform of the Medicine House and necked at the squittering stars. On arising I fell over a chair and bumped my head on the sharp edge of a table, commenting rather freely betimes upon the same, but Honk made no sign of having heard me.

Neither the sandwich nor the stars solaced me. The immensity of space with its myriads of scintillant suns, each the central orb of a universe of whirligig worlds whereon life in fantastic and undreamed-of forms probably teemed—living, striving, dying—a ridiculous routine forsooth—and to what end?

Fiddlesticks! I grew angry. I shook a clenched fist at the unseen destiny that besets us, waking and sleeping, from go-cart to sarcophagus. A thousand imps! What was the use of anything, anyhow?

And then, some furlongs abaft my port beam, a few points to loo'ard, there rang out a shot! The sharp, spatting crack of a target rifle I took it to be. Immediately after there resounded a succession of shrill yelps which gradually receded into remote distance, and then—silence.

I reconnoitered—without recklessly exposing my person to a chance bullet. In fact, I only risked the tip of one ear and part of an eye-winker, trifles one could lose with equanimity, if it so chanced. But the sharpshooter, or sharpshooters, didn't come within range of my vision.

Oh, very well. I sat down again, guardedly, to resume my reverie and stare at the silly stars.

Less than a minute elapsed before another shot echoed, followed in quick succession by two more. The engagement seemed to be getting more general and considerably warmer.

A distinct snarling and spitting was noticeable after this fusillade, also the loud barking of some animal, probably a dog, for it changed directly into a ki-yi as another rifle-crack split the night.

I pricked up my ears, debating

whether to intervene or preserve a more conservative policy of watchful waiting. Sitting tight seemed the more sensible thing to do, so I took a position just inside the door of the car where my presence wouldn't interfere with the plans of either faction of the combatants.

A step crunched on the cinders close by. Alarmingly close by, I thought at the time. My hot blood boiled at the sight of silvery moonlight glinting on the business end of a rifle-barrel which seemed to be coming up the steps.

Ha! Was I about to be forced into this bushwhacking, midnight row in spite of myself?

Then I saw a couple of legs incased in pajamas that had an oddly familiar look, and a haughtiness possessed me. The armed intruder was Honk.

He saw me before he stepped on me.

"Wff!" he grunted. "I guess I got at least three of 'em. Two curs and a cat. It's a pretty how d'ye do when a man can't sleep nights for the howls and yowls of a lot of worthless brutes! The whole town's infested with 'em."

I bristled. "So," said I, "that's what you've been up to, is it? Out sniping at innocent and harmless animals! Manly sport, to say the least! I congratulate you! It takes nerve to sneak up on a defenseless puppy and shoot him down like a dog. That's about as sportsmanlike a thing to do as I can conceive," I sneered.

Honk glared at me offensively. "You don't say?" he snapped. "What's it your dip in, anyway? Are you the legal guardian of defenseless curs in this district? If so, you'd better get busy. I slapped bullets into a couple or three of your charges just now, and I'm slated to shoot every other one that comes yapping around this car and disturbing my rest. Put that in your pipe and smoke it!"

The reference to a pipe and smoking actually unmanned me. Words

WE WEREN'T WORKING ACCORDING TO MARQUIS OF QUEENSBURY RULES.'

choked my utterance. I could only wheeze, splutter, and grow apoplectic with conflicting emotions. In the mean time Honk elbowed his way past me, chucked his weapon into a closet and crawled growling into his bunk.

I throttled an inclination to go snatch him out and mop up the floor with his writhing form. Presently a reaction set in. We couldn't go on with that sort of cat-and-dog existence. Either we must part company or end by shedding each other's hair, if nothing worse. I resolved to have a heart-to-heart confab with Honk in the morning.

At breakfast, he himself seemed less overbearing and contemptuous of mien. True, the same harsh, haggard lines were visible on his frowning face, but the twin whirlpools of his eyes had softened and changed from a villainous green to their old-time opalescent blue. He beat me to it by a small margin, and spoke first.

"Horace," he said almost solicitously, "I've been thinking about a lot of things lately. We seem to be quarreling with each other continually, and I believe I've discovered the cause. It's because you've quit tobacco. Your nerves are all on edge. You're not your former self. The sudden stoppage of the calming, soothing influence which tobacco furnishes to your overwrought nervous system has hopelessly disarranged your disposition. You're an impossible proposition to get along with. You seem anxious to quarrel with your best friends.

"But I have the remedy. You must begin chewing or smoking, or both, now, immediately, at once. Of course, with me it is different. The non-use of the weed doesn't bother me in the least. It didn't have the strangle-hold on me that it had on you. You—"

I flew instantly into a cold fury. He was putting all the blame on me, as usual. And I was as innocent of any deliberate intent to be pettish as a newborn babe.

"Oh, indeed," I said with an ironical politeness that always accompanies my most dangerous moods. "My dear sir, you are most mistaken, I assure you. The use of tobacco has become positively distasteful to me. I found it remarkably easy to break off the habit—if, by stretching a point, you could say I really had the habit. On the other hand, I can see that you have suffered from the lack of the weed. Quitting tobacco has changed you from a tolerably agreeable person into a snarling wolf, a wildcat, a mad dog. Actually you're a fright. You've the amiability of a hedgehog and the kindliness of a rattlesnake. An angel couldn't stand your cockleburr whims.

"There's only one thing to do," I continued oracularly, "and that is to get some good old hammered flat and fill your face with it. That'll cure you. I advise that you get a move on, too. The situation has become critical. Mark my words, if you don't take some such radical measure soon, you won't have a friend left on earth!"

For a dozen tense seconds we were grim and silent, searing each other with burning looks. If either had made a move, I'm convinced that a duel to the death would have instantly resulted.

But neither moved. Thank Heaven I was spared the lifelong remorse, the awful, gnawing realization that I had snuffed out the bright light of my good friend. For, if he had moved, I certainly would have eaten him alive on the spot.

Gradually the terrible crisis passed. Our eyes, dimmed, blinked, wavered to one side. Honk helped himself to a hard-boiled egg and I took a tentative sip of coffee. We finished breakfast without further conversation—but it had been a close squeak.

No fatality marred the escutcheon of that day, although there were the usual number of squabbles among the trainmen who paused momentarily at Valhalla station in passing by.

The flier from the West was forty minutes late that evening. Honk and

I, after the regular interchange of sarcasm and vituperation with the night shift just coming on, knocked off work and called it a day.

We dined non-committally. Another long, depressing evening stared us in the face. I picked up a book. It was a rotten recent novel somebody had discarded in the station waiting-room. I scanned the first page, exploded, and dashed the volume violently upon the floor. Honk, at the other end of the car, was tinkering at a small alarm-clock which had been off its feed for a few days. I heard him mutter a soft "Thut!" as his screw-driver slipped and he barked his fingers on the metal case. He emitted one, short, sharp exclamation (naughty!) and there was a whirring sound, ending in a metallic clatter outside.

I knew without looking that the clock had described a parabola through the open window, and would never, never again sound its cheerful tintinnabulation at the break of dewy dawn.

These outbursts served to relieve the pressure temporarily. I presently felt Honk's gaze, and, turning my head, found him regarding me almost wistfully. He had his coat and hat on, too, I noticed. I sneered and turned my back. Honk went on out with no further word.

I sat for some time plunged in somber reflections. The whole world seemed a dreary hole viewed any way you looked at it. I seized my lid with the intention of hieing myself to the club for a game of billiards or some equally asinine pastime.

"AH, OLD CHAP, I SAY, WEREN'T YOU SPEAKING, THE OTHER DAY, IN REGARD TO A DISTINGUISHED KINSMAN OF YOURS, A GENTLEMAN OF THE OLD SCHOOL WHO OWNED A GREAT TOBACCO PLANTATION DOWN IN KENTUCKY?"

The pungent aroma of tobacco smoke smote my sensitive nostrils as I entered. It was exasperating, but I held myself in check by a powerful wrench of will. Honk, it appeared, had already preceded me.

I saw him sitting, with a scowl on his face, at a card-table near by. Friends accosted me—not exactly in an insulting manner, but in a tone I fancied offensive. I inhaled the stale, second-hand smoke disgustedly and took my departure.

I was rapidly getting in the state of mind where one strides into the first chance tap-room, a broadsword in one hand and a cutlas in the other, and promptly shoots up the place. In other words I was going "bad."

A turn along the streets only distributed the choleric virus throughout my circulation. I grew worse instead of better. So—

I paused at a dark street intersection. My keen eye noted a tall figure about to cut across the corner, a dozen yards distant. I stepped off the curb.

Suddenly, out of the gloom, slid noiselessly a great, black leviathan of a touring-car, bearing down upon me without so much as a squawk of warning. Nimble footwork on my part saved them from a jolt when the wheels passed over my body. I escaped being run down, but not being doused thoroughly when the skidding rear wheels spun sidewise through a pool of slime on the pavement.

Mud splattered me from head to foot. With assault and battery in my heart, I pursued the scoundrels.

Meanwhile, the tall pedestrian farther on had fared much the same as I. Only he failed to escape a side swipe from the fender and was knocked down. He was up like a coiled spring, however, and with one lightning movement, grabbed something dark and bulky from the tonneau.

What he'd grabbed turned out to be a man—a pompous, gruff-talking ruffian who said something about "fools having no business on the streets."

With that the tall stranger tore into him. And then I arrived, at once planting terrible right and left swings from behind. It was too dark for any display of finesse or technique, but our execution was ample for all possible demands of the occasion.

Our victim made a stumbling, half-hearted attempt to put up his dukes and show fight. I suppose that, given time to pose himself, he might have gone through the usual scientific boxing pantomimery without damaging either us or himself seriously. But we weren't working according to Marquis of Queensbury rules that evening.

My coadjutant simply biffed and slugged the fellow until he staggered my way, whereupon I, after swatting, biting, clawing, and kicking the wretch, flung him back to the other who bowled him over, stamped on him, and shuttlecocked him once more to me.

We kept this up for quite a bit—and the longer it lasted the worse it got for our helpless quarry. When, at length, the fellow went down like a big bag of sand, limp and inert, without a farewell wriggle, to rise no more—bleeding, battered, a motionless bulk prone in a mud puddle where he belonged—we gave him a few rousing, punitive kicks for good measure and sauntered on our way.

Save for a little acceleration of the breathing we were unscratched, and none the worse for the encounter.

A great peace settled over my troubled spirit. I hummed a tune.

My companion peered at me.

"Horace!" he cried tenderly.

At ten o'clock next morning a big van backed up to the depot platform and deposited a great stack of boxes, caddies and cartons. It was all tobacco—tobacco in various shapes and forms, chewing, smoking—cigars, a crate of pipes—everything, in fact.

Ten minutes later official Morse, addressed to us from headquarters, solved the mystery. It went on to say:

> Rule forbidding tobacco suspended indefinitely. Superintendent Hodges resigned midnight. On way East with two doctors. Assaulted, beaten, left for dead, last night, Valhalla. Thinks plot to kill. Am sending wagon-load treat for all the boys. Have one on me.
>
> (Signed) James R. Austin,
> Asst. Supt. Transcont. Lines.

"Ah, my dear Horace," purred Honk as we sat in slippered ease after supper that night, in sweet content, enveloped in an azure cloud—"ah, old chap, I say, weren't you speaking, the other day, in regard to a distinguished kinsman of yours, a gentleman of the old school who owned a great tobacco plantation down in Kentucky? I'd love to hear more about him—I've a sentimental feeling for the South—"

HOW THE BIG LEAGUES TRAVEL.

Professional Ball Players Journey Thousands of Miles Throughout a Season to Cover the Circuits.

RAILROADS MAKE BIG JUMPS POSSIBLE.

Traveling in Pullmans, at Usual Rates, the Stars of the Diamond Kill Time Quietly with Their Hobbies and Are Ready to Discuss Almost Every Subject That Agitates Mankind, with but One Exception—Baseball.

BY RICHARDSON DAVENPORT,

Author of "Semaphores of the Diamond."

THERE are ten big cities in the United States where, from April to October, you may see a dozen or more of taxi-cabs disgorge from twenty to thirty clean-shaven young men twice a week. The young men all have certain points in common. They are all well dressed; they are all bronzed; they are all healthy-looking. Most of them are above the average in size. They look at the casual traveler with bored, unseeing eyes, and they appear anxious to avoid, rather than to court notice. They arrive in a body, go directly to a waiting train, and probably enter the dining-car *en masse*.

The young men are the players of some one of the sixteen major-league baseball teams, together with their manager, trainer, the club secretary or business manager, a club physician, and, perhaps, a baseball reporter or two. They are about to travel from one city, where they have finished a series, to the next city, where they will "open" the following day. But unless you are in the secret, or are a very good guesser, you won't recognize them as your favorite team.

"Honus," a smear of dirt on his face, his cap pulled low over his eyes, a stocking torn where some one has spiked him as the great short-stop blocked a runner off second, has little in common with "Mr. Wagner, traveler."

The "Idaho Wonder," red in the face with effort, perspiration streaking down, hands grimy with the dirt of the ball he hurls with such tremendous speed, looks entirely different from Mr. Walter Johnson, the retiring, modest, rather lean-faced young athlete who has apparently just stepped from the tailor's to board the train.

When the "spangles" come off and

the game is over, the ball-player is metamorphosed. He who is so fortunate as to get an invitation to pass an evening in a ball-club's Pullman is going to have the surprise of his life if he expects to listen to the familiar chatter of the ball-field or even to hear the game discussed.

The intimate relation which the railroads bear to all the departments of modern life is sustained even in the ball-game. Of course, if it were not for quick transportation we could not have a major-league schedule. But it means more than that. If it were not possible to have safe, comfortable, and healthy transportation, we couldn't see major-league ball at all.

Every fan, of course, know that the home team plays eleven games in each of seven other cities besides those seventy-seven games played at home. And he must recognize the fact that a ball-player must, during the season, do considerable traveling. But ask the average "fan" how far the team travels, or what it costs merely to transport a ball-team, and his answer will fall short of the mark.

Seven cities must be visited; each three separate times. In the American League those cities are Washington, Philadelphia, New York, Boston, Cleveland, St. Louis, Chicago, and Detroit. The National League omits Cleveland, Detroit, and Washington, and adds Brooklyn, Cincinnati, and Pittsburgh.

Pay Thousands for Mileage.

If a ball-team could start, say at Washington, and go in order to the three other Eastern cities, then make the rounds of Cleveland, Detroit, Chicago, and St. Louis, and so home, the travel for the year would be thirty per cent less than it is. But there is a side to baseball more important than making up the easiest schedule to keep, and restraining the mileage and Pullman charges.

It is necessary to arrange the schedule in the American League so there will be as little conflict as possible with the National League, and it is essential in both leagues that each team have its share of Saturdays and a fair distribution of holidays at home.

The result is that a schedule has many odd little breaks and jumps in its orderly procession. A typical schedule, that of the Washington Americans, for instance, calls for the following traveling during the season: Washington, Boston, New York, Washington, Philadelphia, Washington, Boston, New York, St. Louis, Chicago, Cleveland, Detroit, Philadelphia, Washington, St. Louis, Detroit, Cleveland, Chicago, Philadelphia, New York, Washington, New York, Washington, St. Louis, Chicago, Cleveland, Detroit, Washington, Philadelphia, Boston.

Traveling from city to city, as mentioned in the preceding paragraph, figures out close to twelve thousand miles. At two cents a mile—which the railroads get on a mileage basis—it costs $240 a season to carry a ball-player around the circuit. It costs no less for a doctor, a business manager, a rubber, or a club official. Putting the average at thirty people, the business manager gazes ruefully at a mileage bill of $7,200 for the season for a major-league club.

No Special Rates for Teams.

In addition to this, there is the Pullman charge. A ball-team gets no special rate. It pays for its Pullman just as the general public pays. If it engages two cars of sixteen berths each it pays for thirty-two lower berths. On a "long jump," such as, for instance, from Philadelphia to Chicago, this amounts to $5 a berth, or $160 for two cars.

On shorter jumps, the cost is less; but, for a season, the Pullman company will easily get a ball-team's check for $2,500. Add $300 for taxi-cab hire, which is a low estimate, and the total transportation bill for one

team is $10,000 a season. For all the teams of the two major leagues it would amount to $160,000—a sum equivalent to the interest on a bonded debt of $3,200,000.

It is a remarkable fact that there has never been a serious wreck of a Pullman containing a major-league team. There are instances of delays and minor accidents which "shook up" a team, but no serious accident has ever robbed an owner of any of his players, nor any of those who don "spangles."

It is even more remarkable that the sometimes delicately balanced nervous and physical organization of a star pitcher, playing under the strain of a close pennant race, is so little affected by the discomforts of travel. Of course, discomforts are minimized as much as possible.

Distributing the Berths.

"How do you determine who gets the lower and who gets the upper berths?" a new baseball reporter once asked "Germany" Schaefer, once famous second-sacker of the Detroit Tigers, now a valued coach and substitute with Washington.

"Why, *no* one gets an upper berth," answered Germany, surprised that any one should ask so simple a question, "if the management can help it. We always have two cars when we can get them. It isn't the cost of the cars and berths which counts—it's getting the boys to the ball-park fresh and rested after a good night's sleep."

"And the drawing-room? I suppose the manager takes that?" hazarded the reporter.

"Who, Griffith? Well, hardly! If there is a lower left, Griff will take it; if there isn't, you'll find him in an upper. Drawing-rooms are no good—except to play cards in!"

It isn't always possible to secure two sleeping-cars. In that case the manager will assign lower berths, so far as possible, to those who play on the morrow. The regular players have regular berths: first-baseman in No. 1, perhaps; second in No. 2; short in No. 3, and so on. It prevents confusion, allows the easy bestowal of hand baggage, and eliminates all possibility of wrangling.

The seven regular players account for seven berths. Probable pitchers and catchers will be assigned to the remaining nine, and, after that, substitutes, "rookies," and others not playing will take what is left.

Fitting in the Big Fellows.

But no major-league team can travel comfortably in one sleeping car. To begin with, twenty-five players are carried—sometimes more. There is also the trainer, the club's business manager, frequently other officials of the club, reporters, and some of the players' wives. So two sleepers is the rule, then every one can have a lower berth and sleep as well as the limited accommodations of the modern Pullman permit.

"How does Walter Johnson manage to put himself away in a berth?" was another question fired at Schaefer.

Johnson is six feet and something long and about a yard broad across the shoulders.

"On the bias," was the succinct answer.

"How about Cy. Falkenberg?"

Falkenberg is an inch or so short of seven feet.

"Half on the bias, and the rest around the corner," smiled the German baseball comedian.

Every player will have a kit or a suit-case containing his personal possessions—toilet articles and perhaps a change of linen—but the modern baseball player does not depend on a traveling bag for his clothes. His "war bags" include also his trunk, in which he carries the same wardrobe that any gentleman traveling for business or pleasure would carry.

Unlike the casual traveler for pleasure, or the commercial traveler for a

business house, however, the baseball player, whether he be a star or rooky, has no need to be bothered with the checking and hauling of his baggage.

Deportment Always Faultless.

It is the trainer's business—probably because it comes into the department of personal comfort—to see that baggage is checked, delivered, and properly bestowed in the player's room at the first-class hotel at which he puts up. All details regarding tickets and berths are also attended to for the players.

In the old days of the game, when to be called a ball-player was but another way of saying that one was a "tough" and a "bad actor," train crews looked with apprehension on the traveling ball-team. Skylarking was always in order, and manhandling porters and conductors was not uncommon. Fighting among themselves was a common amusement of strenuous-minded teams, and practical jokes of a very crude and often severe character were matters of course.

To-day all that is changed. Youth, perfect health, and high spirits, particularly when the team is winning, will show in a car full of ball-payers in jokes, songs, and an occasional prank. But the ball-team that would manhandle a porter would be speedily disciplined by its manager, and belligerent players would be fined. As for a player who drinks—well, he wouldn't be a major-league player.

Poker is a staple game of the traveling ball-team. It is played invariably for stakes so small that winning will not bring undue elation or loss a feeling either of regret or anger. The prohibition of high stakes is managerial and admitted as wise even by those who prefer to add interest to their cards with a large stake. Clarke Griffith, one of the expert "bridgers," not only of the ball-playing fraternity, but also among bridge-players, plays for petty stakes whenever he gets a chance.

Checkers claims its devotees, among them Christy Mathewson, the Giants' pitcher, and Sullivan, catcher of the White Sox, both of whom are experts and always on the lookout for a game. Mathewson is also a chess expert, but finds comparatively few opponents for his skill while traveling.

Nearly every club has its quartet—often as surprisingly good as it is frequently very bad. It is not uncommon to find its members occupying a section and lifting up their voices in "close harmony" and "barber-shop minors." The passing of "Doc" White of Chicago from among the major leaguers removed one of the bright particular stars among the song birds. White not only sang pleasingly and well, but composed songs, both words and music, and frequently took train hours for the purpose, working over and over again on some song designed for his use in the "winter league" of vaudeville.

Many Have Serious Pursuits.

Many players, who have serious pursuits in life apart from baseball, utilize train hours for study or the discussion of subjects next their hearts. Frank Chance, manager of the New York Americans, who dislikes any lower berth not numbered "13," has orange groves in California. Fred Clarke and Walter Johnson, the one manager of the Pirates, the other the star pitcher of the American League, are both Kansas farmers in their spare time. Either will talk crops, machinery, stock, or poultry by the hour if they can find any one who knows the difference between a whiffletree and a rainfall.

To see Johnny Evers, formerly of the Chicago Cubs, now of the Boston Nationals, on the ball-field; to watch him bait an umpire, pull a baseball trick, or perform an erratically "impossible" play, one would never suspect him of being a student. Yet Evers can be found almost any time in his corner of the Pullman reading

serious literature that ranges from the "Life of Napoleon" (Dell Howard started him at that) to the "Life and Times of Savonarola."

Jack Barry doesn't believe in taking his religion onto the ball-field; but traveling he will often dig down in a capacious grip for a tome on biblical history.

"Wildfire" Schulte, of the Cubs, likes horses. He will talk horses and horse-racing by the hour.

Comedians of the Diamond.

Fortunately, most ball clubs have one or more members who are either self-constituted good-cheer dispensers or else are encouraged in their buffoonery by the manager. It is impossible to keep a grouch in the presence of such a pair as Nick Altrock or Germany Schaefer. These two Washington American players are the Honk and Horace of baseball. Their antics on the coaching lines and during the practise before the game is a great joy to the spectators.

"Chief" Meyers, catcher for the Giants, is a regular reservoir of laughs; and baseball has an honor roll of comedians—some still funny, others gone from the "big show." Jimmy Block, Tony Smith, Arlie Latham, Artie Hoffman, Lou Richie—they all find the dull hours between city and city a worthy foe for their weapons of wit and humor.

Nor do the supposedly careworn, grave, and reverend leaders of ball-teams despise the chance to get a laugh out of the irksome time of inaction. Hugh Jennings, he of "E-e-e-e-yah!" and a mouthful of grass, can use a clever wit to good effect.

One of the open secrets of his success as manager of a team, which contains two such pepper boxes as "Donie" Bush and Ty Cobb, is that same brand of humor and kindly and considerate outlook on a ball-player's life. John McGraw has little time for jokes, but loves a good one when it contains no malice.

McGraw never stops working. Every minute he is in a Pullman he is either figuring out how to beat some play, planning some new signals for the Giants, or consulting with Mathewson or some one else as to the capacity of this recruit or the ability of that player.

As a general rule, however, ball-field talk is taboo on the trains and in the hotels. It seems difficult for the average "fan" to realize that what is to him a hobby, a recreation, an afternoon's pleasure, frequently a mania, is a serious business to the ball-player.

During business hours the ball-player can think of nothing, talk of nothing, do nothing but baseball. On the bench during a game there is never a word spoken that has not some reference to the game. Before the game every major-league team meets and discusses the coming game, the probable battery, the way certain plays are to be worked, the way the pitcher must "work" certain batters. After the game, as well as during it, there will be a *post mortem* and a great deal of "but I thought," and "if you had done it this way," and "why didn't you run, or steal, or catch it, or let him have it, or bunt, or waste a ball?" or whatever it was.

All Object to "Talking Shop."

Off the field, and especially in hours of relaxation, of which the traveling hours stand forth conspicuous, no one wants to talk less baseball than the ball-player. If he forgets and does break into baseball lingo, some one is sure to strenuously object. The ball-player detests the well-meaning fan off the field and escapes from him when he can; but the rooky who has just become a regular bench-warmer regards the adulation and talk of the fan as the very breath of life.

The jokes played on his mates by the ball-player of to-day are frequently unique. Never a rooky takes the American-League trip between Cleveland and Detroit, but he is invited

to "meet me at the bowling alleys after dinner, and we will have a game." The captain, purser, and stewards are all "on," and when the rooky has walked from hurricane-deck to freight-deck, poked his head into the engine-room, the hold, the storeroom, the purser's office and the restaurant, and in desperation applies for help to find the "bowling alleys," he is soberly informed that "they are down-stairs to your left, other end of the boat," and again he goes off hunting that which isn't there.

Coupling-Pin for a Present.

On the train there is one old, standardized joke. Porters of Pullmans carrying the team for the first trip in the spring are primed and ready for its appearance. When the club wag beckons with one finger and remarks: "Here, you Ethiopian spreader of beds, where are those sleeve-links? I want to make a rooky a present," the porter is ready with two coupling-pins wrapped in a newspaper.

The wag watches his chance and, opening the rooky's valise, places the coupling-pins at the bottom. There is a press of ball-players behind the rooky as he steps off the train next morning, and when he complains of the weight of his bag there is a howl and some remarks about "bushers trying to carry off the railroad without paying for it!"

In the various cities the ball-player must make the best of his long and tedious hours of waiting. Intensely active for three hours, the remaining twenty-four hang heavy on his hands. If you ask any major-league player of two years' standing what is the hardest part of his job, he will say, "Killing time between games"; and the pleasantest of that period is spent on the old railroad, where there is always some one who won't want you to talk baseball!

THE WILD GOOSE RAILROAD.

How the Most Northerly Railroad in the World Was Built from Nome During the Gold Rush.

BY J. S. WOODSON.

IT certainly was some railroad that we built in that one season, and it paid for itself before the freeze-up. Of course, a four-mile line that has a tariff of a dollar fare one way and forty dollars a ton for freight is bound to realize immediate returns if it has anything to haul—and it had plenty.

That was fourteen years ago, when the rush to the Nome gold-fields was on in earnest. People expecting fortunes had come from all the corners of the earth. There were Americans from every State in the Union, Canadians, Britishers, Scandinavians, Dutch, French, Afghans, Chinese, Japs, and other representatives of tribes and races. Indians were there, too, so with red men, black men, white men, and yellow it was a sort of human confetti.

At Nome there were about forty

thousand people and houses enough for eight or nine hundred. The rest of the horde lived in tents along the beach, and some of them, busy at their rockers and long-toms washing the fine gold from the sands, slept beside their work.

Here and there in every direction huge piles of freight cluttered the sands just above high-water mark, and small armies of stevedores were working night and day to unload the ships waiting in the roadstead.

Finally the lone locomotive was dragged from the chaos on the beach. All its parts were found after several days' careful searching, and the engineer sent from the factory began to set it up. Out of the same chaos we dragged a mile or two of small rails, and then found a few kegs of spikes, fish-plates, spike-mauls, and other implements and were ready to build. We had as a rich asset the bubbling enthusiasm of fortune hunters, for this road was to tap the richest gold placer section in all the North, the famous Anvil Creek from which millions have been taken.

We built upon the sands for a few hundred yards, for it was planned to have the shore terminal extend to the very edge of Bering Sea. A towering derrick was being erected on the beach, and the end of the line was to be directly beneath its great boom. The derrick would then have no difficulty in swinging heavy machinery from the barges and depositing it upon the stout flat cars.

Whistle Frightened Malamute Dogs.

The Wild Goose Railroad! That was the name of the little line that started out from the golden beach at Nome that wonderful June after we railroad builders arrived from San Francisco.

The first morning after the locomotive was set up and ready for steam, Riley, the engineer, rose early from his bunk in the big sleeping-tent and stoked the furnace for two hours before breakfast. The Irishman wanted to wake the fellows, and he did, for never was such a shrieking whistle turned loose in a railroad camp.

Malamute dogs lay asleep in the cool sands in the light fog; I saw the poor, unknowing brutes leap startled and stiff-legged, their bristles rising in terror, at the unholy bedlam made by the locomotive.

They then made off to a neighboring hill some few hundred yards distant and howled mournfully while Riley and I laughed at the speed with which they had left the camp and the snug manner in which they had tucked their tails between their legs.

Out came the bunch of tousel-headed men, red-eyed for lack of sleep and too much "hootch" down-town the night before, their red undershirts showing gaudy as they went to the beach to wash their faces. Riley, in the cab, pulled the whistle wide open and grinned.

Road-Bed Built on Snow.

But the road, the building of it. Our cross ties were four-by-sixes, sawed oak. Pretty light, I'll admit, but they held, for we put them close together, and anyway there never was much speed over the Wild Goose.

There was a little speed one day when a car got loose on top of the Anvil-Dexter divide and ran almost all the way to town, but it held the rails by some miracle or other and no damage was done.

A good road-bed was impossible after we got away from the sand near the beach. The tundra was a soft, peaty earth with tufts of moss and grass sticking up from five inches to a foot. These were called "nigger-heads." "Graders," as they called themselves, armed with picks and shovels, went ahead and mowed them down. We track-layers laughed at them — *graders!* The only grading they did was a "lick and a promise," and sometimes one couldn't see where they had been.

Following the graders came the "board-men," carrying one-by-twelve rough-oak boards, which they placed as runners on each side of the road-bed. Ties laid across these heavy boards found a fairly dependable foundation, the same as a man may find by walking upon the snow with snow-shoes. The broad boards covering a large area of the soft, marshy tundra, were able to sustain considerable weight.

We reached Snake River, three hundred yards from the beach, and, in a few days, slapped a trestle across that stream. Heavy bents of sawed timber spiked together by the carpenters were carried out into the stream. We waded in our hip-boots, got half-nelsons on the bents, forced them into the water, and held them there by main force till they were braced and held down by the ties and rails.

Once across Snake River we saw the promised land ahead of us. Anvil Rock, on a seven-hundred-foot hill, lay before us some four miles away, and in its shadow were the rich placer claims of Anvil Creek.

Rails Would Sink Out of Sight.

We took an almost straight course across the brown tundra that, spotted here and there with wonderful wild flowers and soft grasses, offered restful and inviting places for rest. But it was fun, even if it was hard work afterward, and everybody had a job.

It was almost continuous daytime. The sun forgot to go to bed until nearly ten o'clock at night. It hid behind the low hills just a few hours and came up again smiling about two o'clock the next morning. So the road-crew was divided into two shifts, and the Wild Goose flew by day as well as by night.

The rush was necessary because back there on the beach were massive machines with which big things were to be done in the creeks where lay the gold; because hungry men toiled out there in the mines and they must have food; because the owners of rich properties could not get all the teams they wanted to haul operating materials to the creeks. There was enough need, and we worked in a frenzy.

Sometimes an industrious grader would dig a little deeper than usual and uncover ice a thousand years old or more, the lip of a glacier that had extended down from a hill which had eroded and covered the ice with great masses of gravel.

So we had all the ice-water we wanted, and since we were working day and night to get that road through in a hurry we were pretty thirsty at times. It is warm in Alaska during summer.

At length, after about forty days of hard work, we extended the line to Anvil, and by that time I, who had begun as a "strapper" and was finishing as a "spiker," was very proud of the fact that I could drive them home with the little end of the maul and not leave a "trade-mark" anywhere.

When the road reached Anvil the event was celebrated.

A big excursion started the following Sunday. Half a dozen flats with benches along the sides and a railing nailed to the standards inserted in the sockets, were put behind the dinky little locomotive. People crowded to reach the ticket-office, and, after the excursion-train pulled out, the Wild Goose had more than a thousand dollars in its jeans for its maiden trip. There were no ceremonies, no dedication, no speech-making; but there was a great deal of light-heartedness and singing and laughter and dreaming of yellow fortunes.

At times the rails would sink out of sight beneath the weight of the train —the ties disappearing beneath the oozy top of the tundra. The water, muddy and oily, would squirt upward between the boards and the engine would reel from side to side; but it stayed on the rails and blatantly puffed on with its big crowd of excursionists.

With the excursion over and everybody happy, the railings were stripped

from the cars, the benches were laid aside, and real business began. Freight was piled up and up and up till the engine could barely wiggled off with its load. Cases of food supplies, piles of lumber, boilers bigger than the engine ahead, and pack outfits of prospectors bound for the distant creeks and hills presented a grotesque appearance.

But it was a pleasing picture to those interested in the eggs that this Wild Goose was to lay. And the Wild Goose did lay eggs that summer—laid them at such a rate that before the snow flew in October it had paid all the expense of building and was ready for a busier time the following year.

In the years that followed this most northerly road in the world extended its line. It climbed a hill over fourteen per cent in grade and started up Nome River toward the Kougarok, one hundred miles away. Then the name was changed to the Nome-Arctic Railway, because with its prosperity and expansion the Wild Goose needed more exalted dignity. Tents for stations, a conductor in blue shirt and overalls, and passengers in khaki, heavy boots, raincoats, and happy grins—that was the road on a busy day.

Two wrecks occurred on the Wild Goose that ended fatally. The edge, or lip, of a glacier exposed to the sun melted from beneath a rail. The engine got over it all right, but a heavily loaded car caved in one side.

The president of the road, Dr. Cabell Whitehead, was thrown into a mudhole and held under the muddy water by the freight on top of him. He was rescued by the passengers and trainmen, but traumatic pneumonia set in, and within two days he was dead. Another wreck was that in which Harry Niebling, the engineer, was killed. The engine left the rails at a washout and fell against a bank, pinning Niebling to a broken steam-pipe, which emptied its volume of steam over him.

An interesting and novel feature of this railroad, never seen anywhere else in the world, are the "dog-poor trains" that run after operating is closed down for the season. When the placer mines freeze up in the fall the railroad has no further business; but the track may be free from snow for weeks afterward.

Miners placed push cars on the track, and to them hitched their dogs. And off they went, the dogs keeping to the track and the combined engineer, conductor, fireman, and brakeman watching carefully to apply his stick-brake on down-grades.

Of course no one will get the impression that the Wild Goose Railroad, as it will be known always to its old-timers, is a trunk line; but you may take the assurance of a man who helped build it — who was section-hand and section foreman, station-agent, brakeman, and conductor at different times—that it is a hummer.

HOW RAILROADS WERE REGARDED IN 1828.

ALEXANDER WELLS, an old citizen of Wellsville, Ohio, has a copy of an interesting and novel document issued by the school board of the town of Lancaster, Ohio, in 1828. The question of steam railroads was then in its incipient stage, and a club of young men had been formed for the purpose of discussing their value and feasibility. They desired the use of the schoolhouse for purposes of debate. This was looked upon by the members of the school board as an innovation bordering upon sacrilege, as indicated by their reply to the request, which is the rather pessimistic document in the possession of Mr. Wells. It reads as follows:

> You are welcome to the use of the schoolhouse to debate all proper questions in, but such things as railroads and telegraphs are impossibilities and rank infidelity. There is no work of God about them. If God had designed that His intelligent creatures should travel at the frightful speed of fifteen miles an hour, by steam, He would clearly have foretold it through His holy prophets. It is a device of Satan to lead immortal souls down to hell.

The Wolf Pack and MacGlory.

BY ROBERT FULKERSON HOFFMAN.

The Spike-Maul's Rap, the Farm-house Bell, and the Blood-Cry of Slum Wolves Prowling.

MacGLORY was only MacGlory, but he was not the only MacGlory. Let us then have a care for the others — the makers and menders of track. Broadcast on the toiling earth, lifting their patient faces at the call of their thousand names which are the mere accidents or incidents of birth, the MacGlorys nod their ready assent to the order spoken and, bending again to their wearing task, keep close, close to the ground, paving the way for our steel-shod feet.

In the choke of dust-storm or the quick drench of rain, in the searing blasts of winter or in the withering heat of summer's sun, the vibrant clang of the smitten rail is heard, the rap of the spike-maul, the keen bite of the adz, the dull crunch of the tamp-bars, while the MacGlorys lift us up and bear us far "on the wings of the morning." In the hollow of their calloused hands we speed.

Melting in the sweat of their faces the stinging sleet of long, gray days, drying with the heat of their own bellies the drenched shirts upon their own bent backs, the MacGlorys lift up our naked-born feet from the ancient earth, and send us speeding, dry-shod, swift and sure along the glimmering roads of steel—safe above the plodding cling of the ancient mire —safe, self-centered, serene above the —above the *MacGlorys* who make and keep the track?

Ah, well! You need not answer, even to yourself. You need not flush again. It is not that you have really ventured to despise the bronzed MacGlorys standing aside for the moment of your proud passage by the track. It is only that you have taken them too wholly as a matter of course.

But, now that you have come briefly to consider the matter, just lift your hat occasionally, or, if you do not wear the sort of hat which readily lifts, just wave your daintily gloved hand, and in either case smile—smile as though you meant it, and learn to mean it very much indeed—when you see the upturned face of a veteran MacGlory by the track.

Just at first he may not fully understand. It is likely that he will think you some new sort of faker who had not the time to stop and unfold a smart new flimflam or unsling a well-worn slungshot. But keep on waving, keep on smiling through your square of shining glass when you see the steady, upturned eyes of a tanned MacGlory; and after a while he will know that you have come to help him, as you may, to make and keep the track which lifts and holds your earth-born feet above—only a little above—the naked, primal clay.

For MacGlory's lot is hard. His heart is often heavy with the weight of that ceaseless lifting upward from the clay, and sometimes—though who would strike a MacGlory bending at

his heavy task?—the wolves—human wolves—prowl just down there where you catch your fleeting glance of him; and, all in all, MacGlory needs your recognition and your cheer.

He needs the heartening smile of your approval for his skilled, patient work. But, without that, he has lived. He needs the swift, sure protection of a far-reaching law that will probe to the darkest recesses of lairs in city slums and throttle and hold strongly in leash the human wolf packs which fare forth to prey upon him. Without that, he has died, on occasion—died fighting with his naked hands that the great steel way might be smoothed for you.

So fought this MacGlory who was only MacGlory, track foreman of section eight, and so this MacGlory died.

MacGlory's heart, like MacGlory's hands, was big and red with the throb of life in the lonely open. And when he needed men to fill the occasional gaps in the section gang's scant ranks—but, after all, Nally, special agent, tells the story best, far better than another might hope to do, perhaps because it is so cruelly plain.

With his feet cocked comfortably in the middle of his desk and his cigar drawing smoothly below the pungent blue spirals which flatten out calmly above his head, he says:

"Oh, that shooting of old Donald MacGlory? Sure! He fought like a bull, old Don did, and they beefed him like that.

"From what we've since got, I expect MacGlory's first-off quick notion was that they were there for bigger game—the springing of one of MacGlory's good, smooth rail-joints and the ditching of the Overland's coin-bags, or something like that.

"But, whether MacGlory lasted long enough to rightly know the dirty little play, or whether he didn't, he'd 'a' fought 'em just the same. For the track he fought 'em, and for the track he died. That was MacGlory—and, man dear, when you get right down to the roots of the railroad game, *that's the MacGlorys!* That keeps the road open.

"You see," says Nally, with a quick sweep of his arm as if to hush the growling rumble of the wide-flung city, "it's lonely as the devil 'way out yonder.

"A man standing in the middle of that prairie stretch where the tracks run to pin-points, both ways in the beating sun, and thinking track, whacking track, lifting track, and living track—why, he's not rightly heeled, mental or gunwise, to copper on sight every skulking play or snarling dash that one of these Chicago wolf packs can make.

"If you come his way needin' it, he'll share the last piece of bread in his bucket with you. If you need a job and he's got it to give, he'll take you on faith and give you a try. If he has you to fight, he'll fight like a cave man—and guns don't seem to fade him none till afterward.

"That's the way the game stacked up on section eight. This Rocco Lobo who rung in a cold deck on Don MacGlory without the old man's ever knowing who really dealt him the knock-out—he'd gone out there on the section and got himself hired, fed, and fired before we knew anything about that here in the main office.

"Yes, we'd ought to nailed him sooner; but they're a sly pack, and we let him get out of sight for a little.

"Down here in our belt-line yards, and some out between there and the main-line junction, there'd been a lot of seal-breaking and box-car robbing on a scale that put the price up into the thousands for just one spring campaign.

"We'd got close enough up on the gang to put a .45 puncture in a running hat, once or twice, and pick up the hat where it fell. We had a right fair idea of who was who, too; but we couldn't get enough straight stuff on 'em to nail 'em good and right, just

then, and we were still circling a little wide around 'em when they scattered.

"But we had pulled the game in to where it centered down on this Rocco Lobo gang and their headquarters in Jernigan's 'flop joint' out near the viaduct, when one of my boys slipped up just a little and this Lobo disappeared. It was getting too hot for him. He faded.

"Well, he played the old wolf trick that's always new and mostly always goes for a spell—just lit straight out on the main line, circled round a bit on foot, and doubled close back on his trail and got himself hired as a section hand on MacGlory's section eight.

"Yep. Same as a scared wolf lights straight out from a rancher's front door, circles around the bluff, and comes crouching up to have a safe look at his back-door yard.

"I reckon he worked out there just about all of that summer. Sure, he did! He was putting up the framework for a right smart alibi, making a small stake for winter, and getting pointers on the best stuff that was passing over the line.

"Sweet, wasn't it? And him eating at Mrs. MacGlory's table in the section-house, playing tag with MacGlory's shouting little kids, and camping out by himself in a deserted shack by the tracks where MacGlory had quartered him for observation.

"Um-huh. It's likely that I or any one of my men could have tossed a cigar butt out of the car window and hit that old sundowner hat he had pulled down over his face while we rode past him and he tamped rock or hustled ties for MacGlory, and sent pointers to the gang that still hung out at Jernigan's 'flop' and had us going wild over their seal-breaking.

"That's how, when this Lobo made the fool play that uncovered the whole gang—and covered poor MacGlory for good and all. It was another of the silly little piker plays that make me swear all crooks are more or less idiots and had ought to be in the detention hospital more than in Joliet.

"For you'd naturally think that a crook gang having raw gall enough to make a gun-play on the main line, in broad daylight, would have brains enough to hold out for something worth while—pay-car or Wells Fargo, or something like that. Now, wouldn't you? Well, just watch it!

"Our pay-car handles cash on the spot. For as much as three pays, mebbe, this Lobo watches this pay-car of ours spreading its eighty thousand dollars a month over the line, and out of it his own little bunch and MacGlory's in the deal.

"He smells out that MacGlory don't take much stock in banks, but carries his growing wad in his jeans while he keeps on holding out for a farm that lies close by. It's only a little wad MacGlory really has; but it's real green and yellow, and it's so close at times that this Lobo wolf can smell it.

"So he gets it through his fool head that MacGlory's the biggest and softest thing in sight, and he sets up the wolf blood-cry that somehow reaches the gang in Jernigan's flop without scaring up any noise on MacGlory's section.

"Then, after the gang has had time to mull it over, he gets sassy to MacGlory and gets himself fired. And straight back he heads for Jernigan's joint.

"That's where our boys got hep to him again. The night before the pay-car for that month was due to pull out over MacGlory's section, Rockwell, of my staff, shambled like a drunk into Jernigan's and found this Lobo umpiring some queer kind of crap game that four of his gang were throwing on one of the boards of the roost.

"Rockwell slumps down on a board bunk close at hand and watches the performance, and listens to the cussing wrangle while he snores some.

"Besides the dice, Rockwell says there were two sawed-off .38 revolv-

ers and what looked to be a pair of sawed-off pick-handles on the board as stakes. And after a while he catches on that the game is to *not* win the revolvers—nobody seems to be hungering for them—but all of them are glad when they win the pick-handles.

"So they win and lose, back and forth, best out of so many times, pushing the guns off on first one pair of them and then another, till they cuss and play themselves to a finish and a pair of them is stuck with the guns and pockets them.

"It looks right nasty to Rockwell, knowing what he does, so he gets mighty sick all of a sudden and honks his way, open and noisy, to the street, and starts using the wires to get us all in motion.

"That's where Rockwell made *his* little break. Of course, he knows now that he should have got quick help from the beat outside and pinched the whole gang right then. But he banked on their sleeping a wink or two before we'd trail them straight to the job.

"That was lacking a few minutes of 3 A.M., and when Rockwell slouched back into Jernigan's like he was ready to sleep, the gang was gone—and so was our 3 A.M. train, headed out over the line toward MacGlory's section and the plains beyond.

"Yes, Lobo's gang was on it, and before daylight was clear they had dropped off at the nearest water-tank, circled a mile through the farm country, and were safe hid out in the old shack that Lobo had held down through the summer.

"Yep, that's when the wolf pack hit MacGlory's. Just loped in gentle and laid there all morning, we figure, wrangling out the gun-and-club proposition all over again. We found a couple of their dice afterward. Just laid there, gambling and cussing, I suppose, while MacGlory's kids went chirping and laughing off to the country school, and the sharp rap of the spike mauls came clinking down the rails, and the pay-car halted to pay MacGlory's gang in the big stillness, and hustle on to the far point in the tracks.

"When the farmhouse bell rang out for noon on that place that MacGlory wanted to buy, MacGlory's gang knocked off for dinner, as usual, and came pumping easy down the line with their car to where they had their grub camped out with their coats and the like.

"Now you just get a notion of old Don MacGlory, rolling along easy with his gang, feeling pretty well satisfied with what he'd got done—and MacGlory gnawing hungry.

"That's when the four wolves bulge out of the old shack, plant themselves on the track, and cover the gang with their sawed-off guns, and:

"'Put up your hands! Put 'em up quick!'

"Lobo, being easy to know, hangs back out of sight in the shack, and old Don and his crew are facing four sallow pimps they'd never before seen, two guns low and good for the stomach, two clubs waving.

"Now, me—and likely you—I'd 'a' sure held mine up on a drop like that and trusted to playing a return game with 'em later.

"But old Don just couldn't. It wasn't in him. He just dropped clean back at one surge to the time when his folks run wild over the Scotch granite, chanting a battle-song and brandishing a war-ax.

"He let out a roar like he was half strangled, they said, and grabbed up his track-adz and sprung fair at the guns. His brother caught up a track-gage, and the two of them waded in. The rest of the track crew clutched the car handles, scared too bad to run, or just thinking too slow for the game at first.

"Just at first the guns held quiet. For them this was a brand-new play. The clubs were the things that drew MacGlory. I doubt that he half sensed the guns! Eh?

"I'm telling you that the man threw

back five hundred years, at one red surge of his blood! He saw the clubs! He charged at the clubs with his hook-bladed adz swung aloft in his clutch!

"There were sounds like the squealing of stallions and grunts that might come from a bear, while the pick-handles clashed and the track-gage swung, and Don's adz chugged red chunks from the pelts of the wolves. He clubbed them and hooked them down clear of the rails before the gun-toters gathered the shreds of their nerve, and then the guns began spitting.

"Got Don in the head. He dropped like a beef. Got Len, his brother, both arms and the hip. Got one of their own sluggers in their wild break for the timber—and didn't get a nickel from MacGlory or his crew!

"Eh? Did we round them up? Be sure we did! What would you expect after a thing as raw as that? Yes, they scattered, of course—that's in the game.

"The farmer who lived where MacGlory hoped to live flagged one of our freights and put the crew wise. They hustled on and wired in to the despatcher. And that quick turned all of us loose on hot trails.

"We gathered them all in in two hours. There's the shot one and MacGlory's brother Len in hospital now. There's the other three and Lobo in Joliet waiting their finish. And just two of them I'll notch on my own private stick, for I gathered 'em in single-handed.

"Bah! They're slobs, I tell you! Why, look how they fell for my gag when I nailed 'em!

"That gay light artillery pair of the Lobo's—by fence and field they ran two miles to the junction where I was waiting. They slumped down behind a pile of ties.

"I hobbled down toward them and sat down. In two minutes we were rolling cigarettes from my tobacco. In one minute more we had our three heads close together to light from my last match—oh, *sure,* I had just one lone match!—and when I had pelted each one swift uppercut under the jaw and they had come to enough to pull their feet to the same side of the log where their heads were lying, why, I had their sawed-off guns and they had my handcuffs—on. You bet! On tight!

"But that isn't so much what I wanted to tell you. I guess I sort of wanted to ask you.

"Who, me? Hard-hearted? No, I'm not! No, sir, I'm not! I'm not near as cantankerous as I could be, knowing the things I know about this here darned human proposition.

"What a fellow knows, he knows, and he's got to work according. For instance. Only last Sunday I went out there to Joliet just to satisfy myself that that Rocco Lobo bunch hadn't got any smaller; and I set in at a sacred concert of them Whosoever folks, with Lobo singing tenor and his light artillery squad coming in on the bass—to help out their case that's now before the pardon board—all right, then, darn it, to help out their souls' sake!

"Now, honest, wouldn't that 'sphyxiate you—if you was me? I get all balled up in this social uplift business sometimes, and I fall wallowing back to the old notion that the Whoso folks ain't got so much of an edge on the old Delaware whipping-post, after all. But I know that's right raw. Now, I want to ask you:

"In this safety-first and uplift game, which is the biggest and best game that was ever started, we'll say, good old Don MacGlory is not singing so as to be heard, is he? Not in this world, he's not! His wife and kiddies are not singing as much as they might be, are they? You bet your meal-ticket they are not!

"The Lobo gang's still singing, far's I know, ain't it?

"Now, if you're to spend a few millions for better rails, and MacGlorys to keep 'em put; a few millions more for block-signals and all the safety trimmings that go on the side; a few

more millions for preaching and social uplifting straight off the bat, and the whole works—safety first and all—is for the general social uplift, why don't it start first by lifting out of the game these Lobo-MacGlory plays that are getting thicker every day?

"And, in one way and another, we've all been lifting quite a spell now.

"Who's going to take the job of keeping their own municipal bunged-up and bogged-down degenerates in their own municipal bailiwick and quit pouring them out to take a free-for-all chop at the McGlorys, the safety-first men, and the railroads 'by and large'?

"That's what I want you to tell me! Will the towns do it? Will the States do it? Will—or must—Old Dad Federal Government do it? Eh?

"Somebody's got to do it, or safety first is a rank loser and a tail without a dog! This thing of dumping the whole rotten works out for the railroad companies to wash and airing it on their main lines is getting to be a some heavy job for railroad police. It's slopping over some around the edges! What would you do about it?" begs Nally in conclusion.

And, "up to the moment of going to press," your orator has been unable to file a satisfactory answer. What would you do about it?

RAILROAD BUILDS LARGEST ORE DOCK.

THE Duluth, Missabe and Northern Railway Company's new concrete and steel ore dock at Duluth, Minnesota, with a capacity of 112,000 tons of ore is the largest in the world, says the *Boiler-Maker*. The concrete deck for the steel superstructure carrying the bins is 2,416 feet long, 64 feet wide, and contains 24,000 cubic yards of concrete. The concrete deck is 4 feet 6 inches thick on the inside and 7 feet 6 inches thick on the outside face, the concrete being supported on 14,600 wood piles from 50 to 60 feet long. Between the outer rows of piles, steel sheet piling, 40 feet long was driven all around the dock, held together at the top by steel rods so as to retain the sand fill. The steel superstructure is carried on concrete piers 5 feet square on top, with battered sides, resting on the concrete deck. Above the steel bins are two tracks which permit dumping ore directly into bins from trains. The concreting plant, consisting of elevated sand and stone bins, a mixer and a 50-foot tower with distributing spouts, supported by a boom, was mounted on trucks with a gage of 23 feet. This plant weighed 120 tons. Expansion joints were placed every 144 feet in the deck and the concrete between was poured in four sections, each 36 feet long. The tonnage of reinforcing steel used was 200, with 32,000 yards of sand, stone, and gravel and 27,000 barrels of cement.

CLERKS AND RODMEN AT PANAMA.

THERE may have been some green graduates here who were receiving salaries ranging from $125 to $250; but in general, such salaries went to men of some experience, writes an engineer from the Panama Canal zone in the current *Engineering News*.

The inexperienced graduates at the Isthmus received $83.33, and were rated as rodmen. Although thus rated, it was the rare exception for one of them to run the rod. The work they did was to run either the transit or level. The real rodmen of the Isthmus were colored men from the British West Indies.

Clerks in an organization have useful functions to perform as well as have engineers, and no engineer begrudges them their salaries. If the work performed, however, is an index of the salary which one should receive, the Isthmian Canal Commission certainly treated with more favor the lower ranks of the clerical force than the lower ranks of the engineering force. I know of no clerk who received less than $100 per month.

A lot of the work which was done by clerks receiving $125 and over, could have been done just as well by the men rated as rodmen and receiving $83.33. These clerks, however, could not have done the work required of the $83.33 rodmen.

Observations of a Country Station-Agent.

BY J. E. SMITH.

No. 77.—About the Operator Who Sang "Where Is My Wandering Boy To-Night?" When the Despatcher Was Trying to Call Him.

HEN a boy's name is "John," "Henry," "Moses," or "Peter," he is not expected to cut any particular caper in this world along any other line than hard work and plain, ordinary money-making. If his name, however, is "Ethelbert," "Wilbur," or "Emmett," he is expected to come along with certain esthetic tendencies and present certain frills and furbelows of exterior decoration. He is here to play or paint, sing or dance, or flash in gem and poesy.

Did you ever see Ethelbert, Wilbur, or Emmett in overalls? Nay, nay! Your digger and plodder is John, Hen, Mose, or Pete. The boy with the pat-leather spats and the gloves is Ethelbert. The boy with the blond pompadour and the white tie is Wilbur. The boy twanging the strings of the lyre and stretching his mouth in song like a robin fledgling is Emmett.

This is introductory to the story of romance, intrigue, and love I am about to tell.

The hero is a telegraph operator. His name is Emmett. Had it been John or Pete he would have been found trucking green hides and compressed cracklings from the freight-house into the way-cars; but, being Emmett, he becomes a telegraph operator, whereupon by the same token he straightway becomes an ornament to his profession.

Every profession has its bit of tinsel and touches of gild. A goodly field may have its green sod or black furrows, but it is further beautified by a row of white posts or a golden-leaf maple-tree. So with a profession. It has its workers and achievers, but about the edges and high spots it must emblazon a bit with certain marks of splendor. Operators John, Mose, and Pete were the real productive quality of the profession. Emmett was the painted post or the maple that added to the beauty and set off the perspective.

Emmett's first job was at Forlornville, or, to be more exact, at "FS" tower, just one mile west of Forlornville.

After three pays Emmett had long hair, high-sounding clothes, a dinky cap, and he was buying a guitar on the instalment plan.

Within a few weeks he could sing and play "Silver Threads Among the Gold" and "Where Is My Wander-

ing Boy To-Night?" and come along with his own accompaniment, repeating the chorus and coming back in response to his own encore, while all the time the despatcher might be tearing the wires to raise his office.

The part the despatcher played in the affair did not give Emmett any particular concern. Any one can repeat an office call or can fire-alarm a string of dots in between to show impatience and attract attention.

There came a fateful moment one night. Emmett was particularly nimble-fingered and full-voiced. Three times the despatcher had called him for unimportant things, and three times Emmett had responded. Then Emmett scooted down into his chair, placed his feet on the table, strummed a few rambling and introductory notes, and struck out with:

"Where is my wandering b-hoy to—"

"FS, FS, FS, FS, FS."

Emmett undoubled and answered:

"I—I. FS."

"Dash-dash-dash-Msk," came back from the despatcher; then: "RS, RS, RS."

"Hang that crazy mutt, anyway!" growled Emmett in deep disgust.

It is worth a paragraph of its own, and I want to stop and remark that I have, straight from operators and trainmen, testimony covering a long string of years that all train-despatchers are demented.

Most of them are violently mad, and no one appears to understand why they are permitted to run at large and waylay trains and vex operators who are trying to get the maximum of sleep and music out of the job.

The few despatchers I have incidentally met appear normal, but when they side-track one train for another or hold an operator for some particular purpose their names are execrated in mockery and disrespect.

No despatcher ever wears ear-muffs. East wind, plain freezing or zero, those exposed members burn all the time. Strangest thing of all, and in spite of his general incapacities and mental vagaries, the train-despatcher continues on the job from year to year, and is often advanced. How is that for your cracked-brained daffy?

"The crazy mutt!" repeated Emmett as he slid into another restful position, took up the guitar, and began again:

"Where is my wandering b-ho-y to-ni—"

"FS, FS, FS, FS. Z."

"Why, that howling lunatic!" yelled Emmett, but he answered the call.

"Stay close. May have 31 for first 56."

"Well," muttered Emmett, "where'd that dodo think I'd be around this witching hour of midnight? Over in that east meadow playin' golf, I s'pose. When a despatcher calls an operator in the dead of the night at a tower where there ain't a human soul in a mile and tells him to stay close it shows he's a close reasoner. Wonder if he thinks there's a string of movies and merries and a band and a Great White Way and a lot of flitting butterflies around these corn-field towers?

"Keep close — huh! Who would want to go out? Owls and bats and tombstones! Stay close? Well, I guess yes."

With this brief soliloquy Emmett eased down and began again:

"Where is my wand'ring b-h-o-o-y to-night?"

"FS-FS-FS. Z."

"Wouldn't that frost you?" snorted Emmett. Then, softening to his best irony, he sent over the wire:

I'm here, dearie. I'm right here. My name is Johnny Onspot. I'm one of the always-there-when-wanted boys. That is what will make me president of this pike some day. I—I. FS.

"Don't stop first 56. Report second 56 cmg," came back.

"O. K.," snapped Emmett.

Once more Emmett collapsed into the chair, took up the guitar, and twanged the strings. Again his fancy-mixed barytone broke the stillness with:

"Where is my—"

He only wailed three words. The despatcher was after him again. Worse and worse, he only told him what he told him before:

"Ntg for first 56, but report second cmg."

No wonder the combination dot-and-dash-and-musical artist was provoked. All artists are high-strung, sensitized creatures.

"The half-baked boob!" bellowed Emmett in deepest disgust. "I'll fix him!"

He did. It was a very simple device. He cut out. He inserted the necessary plug. The voice of the despatcher ceased to break the quiet and disturb the serenity of the tower of Forlornville.

Then Emmett sang his song, and came back and sang it again. It is a sad, sad song. The first solemn measures ask, "Where is my wandering boy to-night?" To which the mournful reply comes back in solo or chorus that he is down in a booze emporium imbibing suds.

"He's a happy guy," soliloquized Emmett.

Then came "The Suwanee River," "My Old Kentucky Home," and other standard sentimentals. When first 56 passed he was on "Good Night, Nurse." He had forgotten all about the railroad and the despatcher. The passing train suggested to him that he should cut in and report it.

The despatcher's voice got back into the tower. It was hotly and furiously after Emmett. Emmett answered.

"W'r' u b'n for thirty min's?" demanded the despatcher.

Emmett started to say something about being after a bucket of coal, but the despatcher cut him short.

"First 56."

Emmett reported them.

"Nice work. They are stung at B. with a meeting order with No. 75, and 75 is broken down at A."

"Send 'em orders by second 56," suggested Emmett.

"Second 56 at C. with a car off. If I could have raised you I could have fixed first 56. You'll hear from this."

He did.

Emmett got thirty days for undisturbed communion with Mozart and Mendelssohn. He had four weeks to devote to melody and song. All the way from moon to moon for guitar or harp, oboe, bassoon, clarionet, or trumpet.

Emmett never returned to Forlornville. He became a "boomer operator." You cannot discipline an artist.

He roamed about the country from job to job. He was beyond the Rockies and down in old Mexico. He came back through the South and invaded New England. Then he made his way once more to the middle West. Here commences the story of romance, deep intrigue, and near-love.

As extra operator Emmett turned up at Middleboro for night duty. From seven to eleven there was nothing particular doing at the office, and Emmett strolled down-town every evening to mix with the populace and while away an hour or two in seeing and being seen.

Nowhere do affairs, events, and persons become so absorbing in interest as when a man has duty elsewhere and cannot tarry to see and hear. In the dead, solemn decorum of the schoolroom who does not recall how uncommonly funny any word or act became that was in any way out of the usual order?

So with Emmett. He was intensely interested up-town because he should have been at the office. It is human nature.

Middleboro is a small town. It was nine o'clock in the evening. Emmett had been a resident less than one week.

He was loitering aimlessly along the street, and stopped before a jeweler's window to look at the diamonds, near-diamond, cut glass, and triple-plated ware on display.

Emmett was admiring a diamond pin. Some day he would buy a diamond pin. It was only a question of saving enough for the first instalment. In one year as boomer operator he had set aside from his earnings—let me see.

Figuring it accurately, naught from naught leaves—that's it exactly. That is just what he had as he gazed wistfully at the sparklers. Any one with long experience and handy with figures can calculate very quickly the precise amount a boomer operator has saved in one year and can pay at any one time as a first instalment.

Naught from naught leaves—what? It is always handy to be an expert mathematician.

Two girls of the aimless and restless age came by and stopped. They made pretense of interest in the jeweler's display. The eyes of one wandered from the jewels and met a derelict glance of Emmett's. Therein is your real sparkle. It has the full carat of youth. The glance spread itself into a smile, and Emmett touched his hat.

"Are you interested in diamonds?" Not that it made any difference or was of any particular concern; but Emmett was prompted to say something, and what could be more remote from any personal allusion and better fitted to the confusion of sudden recognition than that simple question?

"Indeed," replied one of the girls, "I dote on them!"

This was corroborated by a flash from her finger.

"I am inclined to think," returned Emmett with assumed profundity and expertness, "that these on display are only rock-crystals and paste. Any one but an expert can be fooled easily on diamonds. The real test, you know, is in their hardness. To me the brilliant is the most beautiful. I prefer it to rose diamonds. The brilliant is more difficult to cut and more expensive. It brings out the beauty of the stone. Pardon me, but the stone on your finger is a brilliant."

Hark to all that, will you? There is skilled opinion with the clever twist of a compliment. Emmett posed a little as if he were head of the diamond diggings at Sierra del Frio or Kimberley, and was just sauntering about on his vacation.

He walked away with the girls and talked some more.

He was lonesome. He confessed it and confided it. He was working out and completing his education. The girls were deeply interested. It was necessary that one travel to broaden his outlook and learn his country and people.

N. B.—The air was superheated and the electric fan was going right. He had taken up railroad telegraphing as the best means. They are always in demand everywhere. His ambition was to work in every State in the Union, throughout Canada and Mexico. He wanted two years for the task. It was knowledge and experience that could be gained in no other way. He was nearing the end of his peregrinations. He would soon turn to the arts or professions as a final calling.

The girl with the diamond thought it was splendid, and that it was such a fine idea for a young man to conceive and execute. She intimated that she frequently strolled up-town these pleasant summer evenings, and she hoped she would meet him again.

Emmett returned to the office with a high step and with a rather stately sense of self-satisfaction.

The despatcher was calling like mad. When Emmett answered he crassly demanded:

"W'r' u b'n?"

Think of that! A slob despatcher, a poor cringing corporation menial on a hundred or a hundred and a quarter per month, handing out an insolent

interrogatory to a classic youth like Emmett.

Emmett answered with the proper *hauteur*. However, nothing came of it further than the usual threats and imprecations that pass so often between despatchers and operators.

In fact, Emmett had vacated so many jobs that "Avaunt!" and "Begone!" had no more terror for him than going out to lunch.

On the next evening and the next, and even the next, he was again loitering about the jeweler's window. By a strange and unexplainable coincidence the same girl happened along. Then she called at the depot. Then he sent her a flower—just one flower picked from many—to show the fine taste of close selection.

The flirtation that followed was fast and furious. In fact, it was necessary that any affair of the heart involving Emmett must needs be the very concentration and essence. He had no time in any one location for any malleability or attenuation of the divine passion.

Knowing Emmett fairly well, it is pertinent to ask—who is the girl?

Every town has its prominent citizen. In this little city Colonel Sudds was preeminent. He was worth a million dollars, and was regularly selected by the Governor of the State for advisory boards and trusteeships. He was consulted on all civic propositions, and was promoter and sponsor of the material uplift of the town.

He had a daughter, Kathryne. (Note the "y" in her name.) She was young, somewhat headstrong, decidedly unconventional, and inclined to be a mite harum-scarum. She was the one to take a liking to Emmett.

Be advised it was no deep-rooted, profound affection in which there are sighs, tears, melancholy, wistful eyes, and real throbs. It was more a touch of passing fancy—of the "Have-a-stick-of-gum?" the "Oh, gee!" and the "Stop-your-kidding" variety.

A millionaire girl is much the same as the girl who works in a glove-factory. She likes the spice and fling and a little adventure, and she is not always as choice as her high estate indicates.

Incidentally, the colonel was made aware of his daughter's alleged infatuation with a boomer operator.

The girl would not have called it by those terms. Emmett wouldn't, either; but it reached Colonel Sudds that way.

This turn of affair did not exactly fit in with the colonel's outlined program for his young daughter's career and advancement, so he took a hand in it.

It is not a part of these chronicles to relate what passed between him and his daughter, but on the following evening a man called on Emmett at the telegraph-office and introduced himself as a friend who had a message to impart for Emmett's good. He proceeded in a half-apologetic, self-ingratiating, all-for-your-own-good way.

"You have been paying attention to Colonel Sudds's daughter, I have noticed," said the visitor. "It's none of my business, understand—and, of course, it's only a little fun young folks will have, and nothing serious—but as a friend I want to warn you. I can tell you something on the q. t. It don't suits Sudds.

"Between you and me he's a dangerous man. If you care anything for your hide you will cut it all out right away. Sudds has got the money and the influence. He can get anything done that he wants done. When it comes to acting he's not slow, either.

"He won't let you have that girl, that's dead cert. You are not in his class—see? If you are conceited enough and are bound to go on with this, something will happen to you."

He leaned forward a little to speak in a lower voice, and cast apprehensive glances about him as if the sign of the Black Hand was on the door, and the assassins, with masks, daggers,

vengeance, and smothered curses, were without, but ready for murder.

"You ought to dig out," he continued. "If you do not something is bound to happen to you. No one will ever know how it occurred. It will be one more of those unfortunate accidents that can't be accounted for, but which totals the same. That is, what's left of you will be shipped out in a box. Honest, my boy, I wouldn't give that for your hide!"

The friend arose and snapped his finger to indicate the trivial value he placed on Emmett's cuticle under certain contingencies.

"I'm just telling you this as a friend. It's nothing to me, understand, how much they rip you up. I just thought I'd give you the tip. It's dig—dig!"

Emmett got out the guitar, sang three songs, and rolled a cigarette. He was gay and unafraid. He unfolded a bit of paper and read. She had written him this note:

> Much 'blige, old top, for your interest in my welfare. But, you see, it's bound to be a few days yet before the Arab folds his tent.

In a few days Emmett had another caller. He was well dressed and businesslike. He was open and direct in his mission.

"We want you out of here and no reason to say why!" he explained in quick-action speech. "I have one hundred dollars right here if you will disappear and stay away." He counted out twenty five-dollar bills. They made some bulk, and they had an alluring green like the vegetation of an oasis to a wanderer on a desert. "You clear out, understand, and it is yours. You go to-morrow—not next day or next week."

Emmett sat up and took an interest in the proceedings. Never before had there been such a quantity of his country's circulating medium within his reach.

"This is not all," continued the business agent. "In ten days if you will write me from any place west of Denver, Colorado, I will remit you another fifty, and thirty days after that still another fifty. Wait then sixty days longer and write again. Remember all the conditions. In ten days, thirty days, and sixty days, and from any place west of Denver. You are a lucky dog. Not many find currency in wads like that."

The lure of the lucre got Emmett. He decamped the following day. Decamping was easy and natural. He had done it regularly for three years, and the act involved only a suit-case and some thirty seconds in which to pack it.

In ten days he wrote from Salt Lake City, and in return he received fifty dollars. Thirty days later another letter brought the next fifty. At the end of the sixty-day period he wrote again. Those were the conditions—the exact conditions. He could not recall just what amount was to be forthcoming at the end of the sixty days, as none was explicitly stated. The reply came promptly. It curtly informed Emmett that no further communications were necessary.

The letter closed with: "Enclosed find the last remittance, thirty cents in stamps."

Thirty cents! Emmett had become a scion of luxury. What were thirty cents to his standard of living? Besides, was not the amount itself plainly an insinuation that he was cheap?

Emmett became wrathful. He would not be debased and humiliated in such a manner. He would show them they could not dispose of him on any such terms. He packed the same old grip and headed for Colonel Sudds's town.

He arrived the day before Christmas. He came in by freight. It was a "drag" at that. He swung off as it slowed down on the hill. Traveling by courtesy does not always include Pullmans and station stops.

Emmett was determined. He would seize the fair seraph even if her name was Sudds, and he would make off

with her. When a woman loves a man she will go with him anywhere and at any time. Emmett had read that in all the storiettes. He would take the chance. He feared no consequences.

Again the web of this romance weaves across the jeweler's window, and Emmett, like the spider that has done the weaving, is in sly waiting. And the girl came along in full flesh and color. She had not pined away, nor was she sighing, nor were her eyes downcast.

She glanced into the window. It was Emmett's cue. He presented himself. It was all exactly as it had occurred in the beginning of the romance some few months before. Their eyes met.

"It is I, Emmett! Don't you know me? I have come back for you!"

That is probably enough of this class of goods. The girl coolly permitted him to measure off some five or ten yards of it, then she said she didn't like the pattern. It wasn't wool, and there was a streak of yellow all through it, and there was nothing more to-day, thank you; whereupon she flitted away and never even looked back.

It took Emmett some time to thaw out. One hundred and fifty pounds of solid ice is not so mobile as a cockroach. At length when the glacier moved it drifted down to the railroad station to bunk with the night operator.

Emmett is still a boomer, and probably always will be. He is still looking for a daughter of the rich. He is resolved next time not to run away, but to seize the angel at the psycho moment.

As for the girl, there happened by a fellow by name of John Henry. Get that? Plain "John Henry." When old "Op" the Knocker gently tapped he opened and grabbed and got her.

Now, who will say there is nothing in a name?

To Claim the Most Stirring Railroad Book-length Novel of the Year is some Statement. Yet, That Is Our Boast.

This novel has been purchased for the

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"The Stolen Signal" will cost you $1.50 in book form; but the RAILROAD MAN'S MAGAZINE publishes it complete with one issue for 15 cents.

The Flag of Danger.

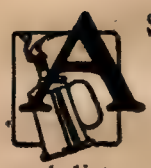
BY CHARLES WESLEY SANDERS,

Author of "O. K., Mo.," "Jack o' Lantern Hagan," "Sleuth 'Morse' Plugs a Circuit," "A Punch on the Jaw," "Trapped by Telegraph" and others.

A RAILROAD NOVELETTE COMPLETE IN THIS ISSUE.

CHAPTER I.

A Night Visit.



S the window gave smoothly Smiling Tommy pushed one foot over the sill, sat down with a foot dangling on either side, and listened intently. So far as his keen ears could detect, there was not a sound through the big house which he was about to burglarize.

Tommy's generous mouth widened a little in a satisfied smile. His left foot followed the right and he let himself down noiselessly on the thick carpet of the room. Then he closed the window behind him. He had come across the lawn from the road and jimmied the window without mishap. He thought the rest ought to be easy.

His electric pocket-lamp sent a thin path of light across the room. Swiftly he focused the light on object after object. It revealed nothing but the furniture of a rich man's library.

The young man's objective was a safe in a hall off this library. As stealthy and soft-footed as a cat, he moved across the room, clicking off the light as he went. He knew, as well as the owner himself knew, just where the safe was. He needed no light to find it. Presently his hands came into contact with its cold sides. He breathed a syllable of relief and knelt before it.

Groping, he found a chair and drew it toward him. On the chair he placed his lamp and turned on the switch. By a little manipulation he focused the light on the combination. From his pocket he took a drill. He worked swiftly, but without appearance of haste. His need of haste would come when he had blown off the door. A quick search of the safe, a rush for the window by which he had entered, and he would be secure. Drowsy servants would not be lively enough to intercept him. He figured on at least two minutes during which they would hesitate in alarm. Those two minutes would be sufficient.

As he drilled he now and then lifted his head to listen. Still the house was silent. This gave him such a feeling of assurance that he ceased to listen. His work absorbed him.

In a room off the hall in which Tommy worked a girl awoke from a deep slumber. She had been reading under an electric lamp. At ten o'clock she had grown sleepy. Reaching up, she had turned off the light and settled back in the big chair. She had intended to doze for a few minutes and then go to bed. But her doze had carried her into oblivion. For two hours she reclined in the big chair, lost to what was going on about her.

She came out of her sleep with the slow lack of nervous haste that speaks of youth and health. She stretched

herself luxuriously and got to her feet in the dark. The book she had been reading dropped from her lap to the floor. The sound of its falling was answered by the clink of metal against metal in the hall.

Then there was silence. The man in the hall had heard the thud of the book; the girl had heard the clink of the metal. He knelt motionless, scarcely breathing, his hearing strained to catch a repetition of the sound or any new sound.

She stood like a statue, that suspicious sound of metal on metal in her ears. No further sound came to the ears of either.

Tommy slowly relaxed. The girl pushed one foot cautiously over the rug. She paused. No sound came from the hall. She followed her first step with a second. With caution she moved slowly toward the door which connected the hall and the room in which she had been sitting.

Tommy went back to his work. He was more careful than he had been. When the book had fallen he had given a little start. His drill had slipped and made the sound the girl had heard.

In less than a minute the girl was at the door. She listened an instant, but heard nothing. She stepped into the doorway. Her hand found the electric switch which would flood the hall with light. At the same instant Smiling Tommy rose quickly from before the safe. His keen senses had told him he was not alone in the hall. He took one step toward the door of the library.

Then the girl turned on the switch. The soft light filtered down from the frosted globes in the ceiling. Smiling Tommy threw up his arm to hide his face. He bent almost double as he turned to run. Without thinking what peril she might be facing, the girl darted forward. As Tommy tried to duck through the doorway she caught his sleeve.

He tried to jerk himself free. The movement uncovered his face. The girl gasped and let go her hold. Tommy backed up against the door-jamb and stood staring at her.

For a moment the smile which was habitually on his lips was gone. The color had faded from the girl's smooth cheeks.

"Tommy Malloy!" she breathed. "So that's the kind of machinist you are?" Her eyes traveled to the safe and back to his face. "Why, you're a burglar! Aren't you a burglar?"

"I guess I am, Lily," said Tommy, the ghost of a smile coming to his lips. "What're you going to do about it?"

CHAPTER II.

"Turn Off the Light."

"I OUGHT to turn you over to the police," Lily Martin said soberly.

Tommy lifted his head and turned the full power of his smile upon her. His lips widened, his big blue eyes sparkled, and his whole face became alight. It was this expression that had won him his nickname. It was a disarming and ingratiating expression, and it had helped Tommy out of tight places before now. In the girl, however, it roused an angry resentment.

"You needn't grin at me like that, Tommy Malloy," she said smartly. "It won't get you anything."

"Oh, you wouldn't be hard on a fellow, would you, Lily?" Tommy asked, his face still bright.

"You lied to me—and you're a burglar," the girl said. "I should think that was enough."

"Who's in the house, Lily?" Tommy asked.

"Nobody but me and the rest of the servants. But it's nearly midnight, and Mr. and Mrs. Graham will be coming home before long."

"I guess I'd better beat it then," Tommy said, with a backward step.

The girl took a step toward him. Tommy stopped expectantly. They

immediately took up their former attitudes.

"You wait," the girl said, with a rise of excitement in her voice. "I want to decide what I'm going to do about you."

"You can't do anything, Lily," Tommy returned. "I've got to make my getaway, and I've got to make it quick."

"What am I going to tell Mr. Graham about the marks on his safe?" she asked dubiously.

Tommy knew that he was in no peril from her.

"You needn't tell him anything," he answered. "Go to bed and let Graham figure it out for himself. I'll leave the window open to help him make up his mind."

"Are you a real burglar, Tommy?" the girl asked tremulously. "When I met you last week and talked to you, you said you were a machinist, and I supposed you were honest. I—I feel as if you had thrown me down."

Tommy was just turned twenty and impressionable by nature. The girl was very pretty in a soft, alluring way. She had fluffy, brown hair and brown eyes. Her cheeks were smooth and pink. Her throat rose white and slender above the dark waist of her service.

Tommy saw that her pulse was rising and falling slowly in her throat. As he looked at her, she lifted her head and he perceived that tears had welled up from the deeps of her eyes. He had a thickening in his own throat.

"Oh, don't do that, Lily," he said. "I ain't worth it—honest, I ain't. I'll just slip out by the window and beat it. You forget you ever saw me."

"Wait," said the girl, stretching forth a detaining hand but not touching him. "I want to think."

She stood in an attitude of meditation while the young man gazed at her. The smile died from his lips and a flicker of something fine in him came to his blue eyes. He looked more like a clean boy suddenly interested in a girl as clean than like a housebreaker.

"What are you going to do, Tommy?" the girl asked at last. "Are you going on being a burglar till a policeman shoots you dead some night? That's what happens to burglars. Why can't you be good?"

Something out of his dim past confronted the boy. He had been good when he was very young. He was young in years now, but he seemed ages older than Lily in his mind. Yet she was nineteen, a year or so younger than he. He had a sudden realization that the life he had led since he was fourteen had seared him. For the first time he was sorry. And in her attitude of pleading Lily was especially charming.

Tommy gulped.

"Do you want me to be good?" he asked.

"I do indeed," she answered. "If I had thought you weren't good I would not have had anything to do with you. These people here have been kind to me. I wouldn't go back on them for anything. Isn't there time for you yet?"

"I don't know," said Tommy. "I'm pretty well tied up. I don't know what I could do. I haven't any trade or anything. I couldn't do nothing but carry the hod, I guess. Besides Burns would be on my trail in ten hours, and he'd get me.

"Burns is a powerful man, and he don't stop at a thing if he sets out to get a man. He's been kind to me, too, like these people have been kind to you. You wouldn't throw them down, Lily, and I don't see how I could throw Burns down. You and me haven't had so many friends that we could afford to lose any."

"He's a fine friend," the girl broke out. "What has he done for you but make a thief of you?"

Tommy winced at the word. Others had called him a thief, and he had received the odious word with equanimity. But it was like a lash coming from this girl.

"Well, he's been my friend any-

how," Tommy said stubbornly. "He took me out of the gutter and gimme a home. That's what he did. And I never had a home from the time mother died till he did pick me up. You know how it was with dad and me."

"Yes, I know how it was," the girl said. "You didn't have a fair chance, Tommy. But you still have time. I'd be your friend if—"

She stopped suddenly. Tommy had half turned toward the dark library behind him. There was a look of frozen horror on his face.

"Turn off that light," he said thickly. "Quick, Lily! Somebody has just come through that window. I can feel him. Quick, I tell you!"

The girl did not move.

CHAPTER III.

Tommy Smiles.

MR. and Mrs. Graham had tired of the dance at Mrs. Hobbs's sooner than they had expected. They bade their hostess good night before the festivities were well under way. They had been married less than a year and found more pleasure in the company of each other than in a crowd.

Their car ran smoothly over the asphalt and then struck off on the rural road that led to their home. As they came in sight of their big house, Graham signaled the driver to approach by way of the front drive. This cut through the lawn a dozen yards from the front porch. A graveled walk led up to the porch from the drive. Mr. and Mrs. Graham descended from the car and started up the walk. The car sped away to the garage.

As they came to the foot of the steps, Graham put his arm about his wife's waist. They went up the steps slowly. Graham withdrew his arm and pulled out his latch-key. Then he stopped. Through the window in the door he had caught sight of a man standing before the safe in the hall.

He leaned forward for a better view. This brought the girl within range of his vision. He uttered a muffled exclamation.

"What is it, Jimmy?" his wife asked anxiously.

He straightened up. He knew something had gone wrong in his household. He would have supposed at first thought that the man was a burglar and would have prepared to deal with him summarily. But he could not understand the girl being there. She was his wife's maid, but she was something more than that.

Mrs. Graham had found her in an orphan asylum before their marriage and had taken her to her own home and befriended her. When she had married Graham, she had taken Lily with her to Graham's home.

Graham knew the girl was pretty, apt, and intelligent beyond the general run of servants, and he also knew that Mrs. Graham trusted her implicitly and was even fond of her. They had done a good deal for the girl in training a mind a good deal untutored. To add to his indecision Graham did not want to frighten his young wife.

"Oh, nothing," he said, with assumed carelessness. "I think we had better go into the house by the side entrance. You can go directly to your room. I want to go into the library for a moment."

Mrs. Graham was not so easily deceived. She became aware that her husband had seen something unusual beyond the door. She leaned forward and peered inside.

"Why, it's Lily and a man," she whispered. "What do you make of that, Jimmy?"

"Well, to say the least, I don't like Lily's entertaining visitors in this way," Graham returned, "even if that is all she's doing. That may not be all, however. The man may be a criminal of some sort. We'll go in by the side entrance, my dear."

They crept down the steps and passed along the side of the house. As they came to the library window,

Graham looked up. He saw the faint marks of Smiling Tommy's jimmy on the sash, showing white against its glossy surface.

Graham stopped.

"My dear," he said, "that young man's entrance was more forcible than polite. He went in through this window. Run along to the garage and tell Blake to watch out for you. I'll go in through the window and surprise our caller."

"He may hurt you, Jimmy," she said, seizing his arm in alarm. "Hadn't we better call Blake first and let him go in."

Jimmy Graham laughed quietly. His blood was running fast through his veins. He sensed an adventure ready to his hand. It allured him.

"Would you have me send Blake where I am afraid to go?" he asked. "That's hardly the way we play the game, is it?"

"No," she answered. "But I don't want you to get hurt."

"Nonsense. He won't hurt me. I'll have him on his back in three minutes. I won't take any chances."

"Very well," Mrs. Graham said. She knew that argument would be useless.

She started toward the garage. Graham raised the window an inch. It made no sound. Then he shoved it up far enough to admit his body. He put his foot on the floor quite in the way Smiling Tommy had done a short time previously. He sat on the sill and listened.

He became aware instantly that he had been discovered. Tommy's sibilant whisper reached his ears. Through the doorway he saw the girl did not obey the man's order. Graham dropped quickly to the floor on both feet and started across the room.

Tommy, when the girl had stood there unmoving, had given her one quick glance in which there was a touch of resentment. When he heard Graham throw caution to the winds and dart toward him, Tommy jumped for the electric switch. As Graham came to the doorway, Tommy snapped the switch. The hall was in darkness. Graham advanced into the hall.

"Turn on that light, young man," Graham said sternly. "I've got a gun." He heard Tommy fumbling gently with the lock of the front door. "You can't get out that way," he went on. "The door is locked."

Finding the door securely fastened by a lock which he could not open, Tommy turned about desperately. He did not know that Graham was unarmed. If Graham had a gun, as he said, Tommy felt that he would have to brave that, too.

He had to escape. He would rather die now than hear the lock of a cell door grate behind him. He was young and very much alive, and he had always had a horror of being shut away from the world. He had to get back to the library window somehow or other.

Crouching, he started toward the door. He held his own breath so that he might hear Graham's rapid breathing. It was the only clue to the man's whereabouts. Flattening himself against the wall, he crept forward inch by inch. Graham's voice broke the stillness:

"Lily, turn on that light."

Tommy paused and straightened up, waiting to see if the girl would obey. A low, inarticulate sound came from the girl. Despite his peril, Tommy grinned in the dark. He knew that Lily was a little on his side, but whether she was sufficiently so to refuse to do as Graham said he could not tell.

"Leave the light alone, Lily," Tommy whispered.

"Oh," Graham broke out angrily; "so she's in it, too, is she? You ought to be ashamed, Lily, after what Mrs. Graham has done for you. I didn't think you were an associate of thieves."

As Tommy suddenly feared, the girl could not stand that. He heard

her spring to the light and click the switch. Again that soft radiance filled the room. It revealed Tommy against the wall and Graham standing erect near the door. The light was so soft and came so gradually that neither man was blinded.

They moved at each other simultaneously. Graham strode forward with the confidence in himself that a strong man has. Tommy, because of Graham's size, knew the odds were against him. His progress was the wary, careful advance of a wily animal. When they were three feet from each other, Tommy bent and hurled himself. His head landed in the pit of Graham's stomach. Graham cried out and fell back.

Tommy clasped his legs, intent on pitching him backward on his head and then fleeing for the window. Graham was too strong. He fell, but struck on his elbow. His hand found Tommy's collar and he pulled Tommy up to him. They began fighting across the floor.

Graham was a college man, a trained athlete. He could wrestle and box skilfully. He should easily have conquered the slighter Tommy, but he was unused to Tommy's mode of warfare.

The boy fought like a wildcat, writhing and pulling, scratching, clawing and striking out with his fists.

Graham felt Tommy finger-nails tear down his cheek. He was aware that there was a trickle of blood where the skin had been torn away. The slight pain infuriated him. His arms slipped down to Tommy's chest and he put all his strength into them. Tommy gasped for breath and stopped fighting.

Graham rose, dragging the boy with him. Graham's arms closed in a mighty hug. Tommy lay still. Graham, all the fighting blood in him at boiling point, lifted the slight figure above his head.

The front door was thrown open and Mrs. Graham and the chauffeur burst into the room. Mrs. Graham shrank an instant from the sight of her husband's convulsed face; then she screamed.

Graham came quickly to his senses. With a kind of shame in his face, he let Tommy slip to the floor. He stared at his wife across the boy's figure.

"You'd better carry him into the library, Jimmy," she said, her lips trembling in spite of herself. To the chauffeur she added:

"That will be all. You may go for the night."

The man let himself out of the front door. Graham picked Tommy up and bore him swiftly and easily into the library. There he switched on another light with one hand and laid Tommy on a couch.

Tommy's breath had come back and with it his instinct to escape. He had been aware of the pity for him in the woman's tone, and he took advantage of that. As Graham straightened up, he slid along the smooth leather of the couch and got to his feet. He was half-way to the window when Graham intercepted him.

"Not so fast," Graham said grimly. "I want to talk to you, you young wildcat. What're you doing in my house at this time of night."

Tommy stood up. He saw that there was no chance of escape. His eyes traveled to Mrs. Graham's face. His curly light hair was tousled over his forehead, his slight figure drooped a little. He seemed smaller than he really was.

But his nerve was coming back, a nerve that had never deserted him in a crisis. Slowly his mouth widened. He smiled straight into the woman's face. She was quite young herself and in Tommy's grin there was something of a boy's appeal to a girl.

"Why, Jimmy," she said, "he's only a boy. Surely he was doing nothing wrong."

"No," said Graham, with a sidewise grin at her. "He wasn't doing

anything wrong, only boring a hole in the safe to blow the door off."

CHAPTER IV.

An Offer.

"SIT down," said Graham sternly, for he himself was finding something attractive in the young burglar. "My dear, do you wish this young woman to remain?"

Mrs. Graham glanced at Lily in doubt. She was disappointed in Lily. She had been attracted by the girl, and in taking her into her home with little knowledge of her she had been indulging a belief that she could tell what people were bad and what good by merely studying them. She had asked for no more in the way of a recommendation for Lily.

It seemed that her perception had led her astray.

"Please let me stay," Lily said in a low voice. "Maybe I can help you to understand about Tommy."

"You know him, then?" Graham asked.

"Yes, I know a good deal about him," she answered. "Shall I tell you?"

"Keep still, Lily," said Tommy, his smile fading. "I can take care of myself."

"You can, can you?" Graham asked. "Well, perhaps I had better just call the police and hand you over to them."

Tommy paled. This was the hardest thing Graham could have said to him.

"Well," he said, "if that's the way you feel about it, let 'er slide."

"You've got nerve, haven't you?" said Graham. He admired nerve.

"Some," Tommy admitted, his smile coming back.

"Say," Graham broke out, "you've got one of the finest smiles I ever saw light up a human countenance. What's the matter with you? If I hadn't caught you in the act, I'd never believe you were a burglar. You don't look bad."

"He isn't bad," Lily interrupted.

"Well, tell us what you know about him," Graham said more gently.

"When we were little," said Lily, "he and I used to live on the same street, next door to each other. Tommy's father was a bad man. He drank and abused Tommy and Tommy's mother. She was sick all the time. When Tommy was a little bit of a fellow, he used to sell papers on the street. That was about all the money the family had, and Tommy's father spent most of that.

"Tommy's mother died, and Tommy's father was worse than ever. He used to beat Tommy till Tommy was black and blue. A good many times Tommy used to hide in our yard to get away from his father. But he never used to cry very much. They called him Smiling Tommy even then. Lots of men used to give him a nickel for a paper instead of a penny, just to see him smile."

Graham looked at the boy. He was sitting on the couch, leaning forward, his face flushed and his eyes very wide open. As he sat there, he was not unlike the little street arab whom Lily pictured, Graham thought. Something deep in Graham's heart stirred.

Though Tommy didn't know it, he was safer at that moment than he had ever been in his life. Graham's own lines had been cast in easy places, except where he had chosen to cast them anew. But he had never been blinded to the fact that other men faced realities which he could know little about.

"And then one day Tommy's father beat him worse than usual and Tommy ran away," Lily went on. "I didn't see him again till last week. I met him on the street down-town. We knew each other at once. We took a walk in the park and had a long talk. I told him how my mother had died and I had been put in an asylum and you had taken me from it. Tommy said he was a machinist."

Graham laughed.

"You could put your talents to better use, Tommy," Graham said. "How did you happen to choose my house to break into?"

"Oh, Lily told me where she lived, and I told—told him—"

"Him?" Graham demanded.

"A man I know," said Tommy. "I told him about Lily and where she lived. He got kind of excited and said he guessed I was ripe for a big job at last. And he found out a lot about your house here and he sent me tonight to bust the safe open. It was the first time I tackled anything like this. I never been anything but a lookout for B— for this man. He's always pullin' something off. But he's got rheumatism so he can't get around only when it lets up on him.

"You see, he was the only friend I had after I run away. I peddled papers and the like of that, and I had to keep busy to stay out of dad's way. I was feeling funny one day and I sat down in the park and I couldn't get up. This man came along and he asked me what was the matter. He was kind to me. We talked for a minute and I kind of went off my trolley.

"He took me home and he looked after me till I got over my sickness. Typhoid fever it was, and I liked to died. I stuck along with him ever since. He never beat me nor anything like that. I always had plenty to eat and a place to sleep. It seemed mighty good to me, and, of course, when he asked me to watch outside places for him I couldn't very well turn him down, could I?"

"I suppose not," Graham said softly. "That's about the way the game would break for a nice lad like you."

Tommy started and glanced at Graham to see if the man was "kidding" him; but Graham's face was grave. He was studying Tommy thoughtfully.

"Tommy," he said at last, "if you'll tell me who this man is and where he lives so that I can get the police after him, I'll open the front door and let you go free. Otherwise, you'll have to go to jail."

Lily gasped at the harshness of the proposal. Mrs. Graham murmured her husband's name in a soft objection to his plan. Tommy only lifted his head and flashed a look at Graham. His smile was still on his lips, but it was sad and subdued.

"I couldn't do anything like that, mister," he said quietly. "I tell you he's been good to me and if it's a showdown between him and me I guess I'll have to stick along with him."

He got up from the couch wearily.

"You better call the cops," he said. "The sooner we get that done with the better off I'll be." He turned his wistful face from one to the other of them. "It won't be for long," he said simply. "I'll cash in if they keep me shut up very long."

"Jimmy," Mrs. Graham cried, "I can't stand it."

She crossed the room swiftly and stood beside Tommy, linking her arm in his. "We're not going to send you to jail," she said impulsively. "We're going to be your friends."

Tommy twisted about to fasten his big eyes on her. Though she was a woman, even she might be "kidding" him. These people and their kind were aliens to him, and he did not know how far they would go to have their fun with one who had intruded on their preserves. But the woman only looked at him with smiling kindliness. Tommy turned his curious gaze to Graham.

"Once you make a promise you keep it, don't you Tommy?" Graham asked. "You never throw down your friends, do you?"

"I never had a friend but Burns," said Tommy, a twist in his smile now.

"So that's his name, eh?" Graham challenged.

A lie rose to Tommy's lips. Graham saw the shadow of it dim his young eyes for a minute. But at last he came out:

"Yes, that's his name. But that won't do you no good. He's got a dozen others that 're just as handy."

"Tommy," said Graham, "this man Burns has probably got a streak of kindness in him somewhere that made him be good to you. But he's doing you more harm than your father did when your father used to beat you. He's making a criminal out of you. Lads who used to give their pennies to their sick mothers don't want to be criminals, do they? Well, the thing for you to do is to cut out this man Burns. If you'll do it, if you'll go to work and try to be honest, just try, we'll help you out.

"My wife and I will always be behind you. And Lily here is your friend. You might not think it, but I work for my living myself with my hands. I think that's what every man ought to do some time in his life. Just now I'm firing an engine on a railroad. My father owns most of the road. He will do anything I ask him to do. He thinks I'm some boy. I'll get you a job if you'll take it. Will you?"

"A job on a railroad," Tommy repeated. "What could I do on a railroad?"

"Why, anything," said Graham. "A boy with your nerve and your faithfulness is just what the railroads of the country need. Will you give it a whirl?"

Tommy looked at Graham, at Mrs. Graham and then at Lily. The girl was observing him brightly, something soft and warm shining in her eyes.

"Yes," said Tommy, "I'll give it a whirl."

CHAPTER V.

A Battle Lost—and Won.

TOMMY had, of course, seen roundhouses and trains many times before, but in his new life he became for the first time aware of the fascination they can have. Graham did not at once have him put to work, but let him wander about the shops and yards and ride on the trains as he pleased. Tommy had credentials which gave him these privileges.

He soon had a host of friends among conductors, engineers, firemen, brakemen, and flagmen. He had enough resilience in his nature to permit him to react safely from their gibes and jokes, which were sometimes rougher than they were funny.

Graham proved a mystery to the boy. He knew in a way how rich Graham was, everybody in town knew that, and yet the first morning Tommy went to the yards Graham showed up in overalls and climbed into an engine cab. The engine was being cleaned at the pit, preparatory to going out on its run.

Graham beckoned the boy to get into the cab. Tommy climbed up. He stared at valves and throttle in open-eyed interest. Graham threw open the fire-box door and sprinkled a little coal on the already smooth fire.

"You don't have to do this, do you?" Tommy asked.

"I don't have to," Graham returned. "I do it because it's good for me."

"How do you mean?" Tommy asked.

"I'll tell you," said Graham, taking the engineer's seat and motioning Tommy to the fireman's. "You see, my dad used to be president of this road. He made all the coin that I have now. I was a pretty wild sort of a kid. Began hitting the booze and things like that. If I'd been poor, I might have been a burglar. But I had too much money.

"My dad caught me in a saloon one night. He told me I'd have to go to work. He put me up in the general offices first. I'd have died there in a month. I told him I'd have to have something rougher than that to do. So he set me to work in the roundhouse. From there I graduated into an engine.

"I'm going clear up the ladder till

I get to be something or other—I don't know what. It's great sport when you get interested in it. What do you think you'll want to do, Tommy?"

The man was so frank and open with him that Tommy felt some of the other's enthusiasm surge through him. Already Burns seemed to be a ghost of the past. With the adaptability of youth he was easily becoming a part of his new life.

Before he could answer Graham, the engineer climbed up into the cab. He nodded curtly to Graham and glanced at Tommy. Tommy watched him while he reversed his throttle and backed away from the pit. They came to the coal dock, and a great stream of coal rattled down into the tender. Through the yards they picked their way and backed up against a string of cars. Tommy stood in the gangway.

A man with a rolled red flag in his hand sprang up the ladder of one of the cars and began running back over the train. The head brakeman had coupled the engine to the first car, and the engineer was leaning out of the cab window, watching for the conductor's signal. Tommy edged up to Graham.

"The guy with the red flag that just run over the train—what does he do?" Tommy asked.

"Flagman," said Graham briefly. "He rides in the caboose with the conductor. When the train stops he goes back with a flag in the daytime and with a red lantern at night to warn any other train that may be coming behind us."

"Me for that job," said Tommy. "Me to be a flagman."

Graham beamed down upon him.

"All right," he said. "If that's the way you feel about it, we can fix it. You can go back to the caboose now and show my letter to Clegg, the conductor. Then you can make the trip with him if you like."

Tommy climbed up over the coal till he came to the first car. Forty cars back of him was the caboose. He had passed over half a dozen cars when he felt the train jerk. There were two or three successive jerks and then the train began to slide out of the main track.

The morning breeze was coming over the fields on either side, bringing with it the scent of newly turned earth. Fall plowing had begun. The sun was breaking through a mist, sending a flood of golden light. Tommy took off his cap and stared at the scene.

"Gee," he whispered, "Burns is a crazy man. This has got his game beat a city block or two. Me for this."

He restored his cap and began to make his slow way back to the caboose. The engine was steadily gaining speed. The cars swayed a little, but Tommy, lithe and supple, had no difficulty in keeping his feet.

Midway of the train, a man stuck his head up above one of the cars. He had been riding on the brake beam. He stared at Tommy and slowly drew himself up to the top of the car. Tommy saw he had a red flag under his arm, and the boy understood he was the flagman he had seen from the engine cab.

The man eyed Tommy with an air of hostility. Tommy smiled and advanced toward him.

The man was no taller than Tommy, but he was thick through the chest. His head seemed to sit upon his shoulders without the support of any neck. His legs were sturdy, and he stood on the car's top with them spread apart after the manner of a sailor on deck in rough weather. He squinted at Tommy out of little, red-lidded eyes.

"Where d'ye think yer goin', bo?" he demanded.

"Back to the caboose," Tommy answered, still smiling.

"Oh, you are, are you? You guys are gettin' so's you think you can ride in the con's wagon, eh? Of all the nerve. The best thing you can do is to hop down."

Tommy glanced at the ground. It

was spinning away beneath them as the train raced over the smooth track.

"I guess I'd get hurt doin' it, wouldn't I?" Tommy asked.

"Serve you right, too," the flagman said. "Off you go."

He advanced a step toward the boy. Tommy stood his ground. The man stopped and stared at him.

"You got a gun on you?" the flagman demanded suspiciously.

"No gun," said Tommy.

The flagman took a step forward. Tommy did not stir.

"Off you go or I'll throw you off," the flagman said. "I got orders to keep the train clear of you bums from now on and that goes. You goin' to climb down?"

To Tommy had come a new sense of safety. He had been suspected many times in the past and had been threatened by policemen. He had had to flee then. Now he was perfectly within his rights. The flagman could not put him off the train. The situation gave him a feeling of comfort.

"I don't have to climb down," he said buoyantly. "I got a letter from the trainmaster and one from the master mechanic. They pass me. Mr. Graham got 'em for me."

"Oh, he did, did he?" the flagman said, his face reddening. "The swellhead! You're one of his pets, eh?"

"I'm nobody's pet," Tommy flashed out. "I'm goin' to get a job flaggin' on this road."

"Yeh," said the flagman, "that's the way it goes. You get the pull and you get the job. The rest of us has to work for what we get."

"I expect to work too," Tommy said. "I don't want anybody's help."

"Well, you better keep out of my way. I'll give you a swift punch in the nose if you don't."

Tommy eyed the squat figure calculatingly. He had seen many men like this flagman. He wondered if the flagman could lick him. There must be great strength in those sturdy arms and legs, and Tommy was aware that such men were generally ready to back up their talk.

"I'm not looking for trouble," Tommy said.

"Yeh, that's the way with you guys," the flagman jeered. "You'll let a man call you anything or do anything to you, just so long as you fall into something soft. Oh, the gang 'll have a fine time with you. You'll get all that's coming to you. Why don't you come back at me? Got a yellow streak up and down your back a yard wide, ain't you?"

Tommy saw then what the man was driving at. He was feeling him out, testing the quality of his courage. This was one aspect of the game that he did not reckon with. Graham's friendship would be no warranty of smooth sailing. He would have to steer his own ship. But he had been in many tight places, and he had met fear eye to eye. He was sure he had as much courage as the average man.

"I've got no yellow streak," he answered calmly. "If you think you can put me off this train, you can just try it on right now."

"Yeh, an' have Graham on my neck," the flagman said.

"I'll meet you any time and any place," Tommy promised.

Into the flagman's eyes came a slow satisfied glow. Tommy saw that he was a "natural-born scrapper"—one to whom a physical contest was meat and drink.

"When we get in, kid, I'll wait for you down back of the roundhouse," he said. "We'll see whose the best man, hey? I think you're a low-down sneak, a milk-and-water guy that has to feed out of Graham's hand. What do you think about me?"

"I think you're a bully without a backbone," Tommy returned steadily.

The man laughed, a low, cruel chuckle. He spat and turned away.

"I'll be lookin' for you when we get in," he said over his shoulder. "I'm makin' a bet with myself that you don't show."

"I'll be there," Tommy returned over his shoulder.

The sun had set and the switch lights were gleaming when the train rolled into the yards at the end of the district. Tommy had ridden in the caboose all the way. He had found the conductor fat and genial, and he had learned much from him. He had asked the conductor guardedly about the flagman. But the conductor had not been deceived.

"That's Shorty Briggs," the conductor said. "You want to look out for him, son. He's mean in a fight. And he can go some. He's a bully, but he don't know the name of fear."

Tommy said nothing. But he felt the conductor's eye on him more than once during the trip. The conductor was appraising him, and Tommy felt the conductor believed he had no chance with Shorty.

Tommy did not know it, but the conductor was at his heels when he slipped down from the caboose in the darkness. He threaded his way through the maze of tracks up toward the engine. Half-way a man dropped down beside him.

"Are you goin' to keep your date, kid?" Shorty Briggs whispered.

"I'm on my way," said Tommy aggressively.

He disappeared in the darkness and Tommy kept on toward the roundhouse, guided by its lights. The conductor stopped at the engine and waited till Graham stepped down.

"That kid friend of yours has got a date with Shorty Briggs," the conductor said with a grin. "You know what that means."

"Where are they going?" Graham asked. I'll smash Briggs's face if he hurts that boy."

"Back of the roundhouse," the conductor said. He loved a fight himself, and he was half-sorry he had spoken to Graham. "Why don't you let 'em go?" he asked. "The kid looks as if he might take care of himself."

"We'll go up there and see," Graham said. "I won't let Briggs beat him into a pulp."

Tommy skirted the roundhouse and came to a level place back of it. For a moment he stood alone and then Briggs approached cautiously. Briggs stopped. In the half-light from the roundhouse windows, Tommy could see that he was grinning.

Half a dozen men stepped up to the edge of the path of light. Tommy could hear them chuckling to themselves. Tommy saw that Briggs had invited some of the trainmen and roundhouse men to see him chastise the newcomer.

Tommy did not know it, but back of him in the shadows stood Graham and the conductor.

Briggs squared off and Tommy stepped up to him. Briggs stood in an easy position, his hands held lightly. Tommy saw that he was a boxer as well as a rough-and-tumble fighter. His heart sank.

"I'm licked before I begin," Tommy told himself, "but I'm going to get in one or two punches."

"A low-down sneak is what I said you was," said Shorty.

Tommy crouched and sprang. Shorty, taken off his guard by the suddenness of the attack, was not prepared for it. Tommy swung his left just on Shorty's ear, and then sent a smashing right uppercut straight to the point of Shorty's jaw.

Shorty went back, but kept his feet. Tommy braced himself for the punishment he knew he was about to receive. A fierce joy was coursing through his veins. In any event he had shown Shorty he was not afraid, and he had got in two punches.

"Poor kid," came a voice out of the dark, "he ain't got the steam. He'd 'a' put Shorty out if he had."

Shorty, after his moment of confusion and astonishment, came at the boy like a raging hyena. He was mad with rage and he tried to smother Tommy with his blows.

Tommy had to give way before him,

but as he gave he fought back with all his might.

Shorty landed on his mouth and on each eye. His mouth began to bleed and his eyes closed slowly. Twice he had the satisfaction of feeling his fists come in contact with Shorty's face. But the blows had little effect. Shorty feinted and smashed him in the mouth again.

His hands dropped, and his knees barely supported him.

Shorty seized him by the collar and dragged him back to the light. Shorty had no notion of letting his spectators lose anything of what he was about to do. Tommy got his hands up painfully and tried to guard himself. He saw Shorty plant himself on his sturdy legs for a terrific blow. Then some one stepped from the dark and interposed himself between Tommy and Shorty.

"That's enough, Briggs," said Graham's voice calmly. "Leave the boy alone. You've almost got him out."

Rage and shame surged through Tommy. He did not want Graham to fight his battles. He did not want his benefactor to think he had a yellow streak.

"Let him come, Mr. Graham," he pleaded. "He ain't got me out yet. Let him come."

Graham stepped back in amazement. He had thought Tommy almost too far gone to speak. Tommy heard a murmur run through the men about him. Graham's movement had withdrawn him from between the two fighters. Shorty saw his chance and let go his left.

Tommy blocked it and swung at random. His blow took Shorty fairly on the mouth. Tommy saw the red blood stain Shorty's lips. Shorty's right fist shot out. It caught Tommy on the mouth, and Tommy went to his knees. Shorty sprang for him. Graham caught him and thrust him back.

"Leave me go!" Shorty screamed. "He punched me again. I'll put him out and then I'll take you on."

"You can take me on now," said Graham.

Shorty swung at him. Graham stepped back, evading the blow. He shot a terrific left to Shorty's face and a right of equal force to the pit of Shorty's stomach. Shorty gave a ludicrous "Oof" of pain, went down and rolled over on his back.

Tommy staggered blindly to his feet. Tears of mortification were in his eyes. He had failed in the first test of his manhood. He wanted to run away and hide.

And then a strange thing happened. Graham put his arm across his shoulders and gave him a bearlike hug, murmuring words of encouragement. The men came crowding about him, their grimy faces alight and their grimy hands thrust out to him.

"You're all right, kid," they praised him. "You've got the nerve. You were almost out, yet you had the nerve to come back. You stick around a little while and you'll hang Shorty's hide up to dry yet. You're all right!"

Tommy shook the hands that were extended to him. A faint smile came to his bruised lips. The men laughed good-naturedly in his face. He knew that he had arrived safely among them, as surely as if the battle had been of his winning. It was a new way of looking at things. In this world of rugged men you didn't necessarily have to win your battles. You merely had to fight them.

CHAPTER VI.

The Red Flag.

HE won his red flag that autumn. When he was put on the list, the man who put him there gave him the information without lifting his eyes from the work which was spread out on the desk in front of him. Tommy, a little frightened by the official formality, but thoroughly happy at heart, somehow got himself out of the office. He went down to the roundhouse and

saw that Graham was marked to go out soon. He wanted to see Graham and tell him of his good fortune. Graham had developed a dogged, unwavering loyalty in the boy that was the best thing that could have been brought out of him.

Graham swung into the roundhouse a few minutes later. He looked keenly at Tommy. Tommy walked toward him.

"I'm goin' flagging," Tommy said.

"That's the stuff," said Graham, but he did not show the delight which Tommy had expected.

"Tommy," said Graham, "I've got a letter I want to show you."

He drew a letter from his breast pocket and handed it to the boy. Tommy's heart sank when he saw the handwriting. The handwriting was a reminder of the past which Tommy was beginning to forget.

"Do I have to read it, Mr. Graham?" he asked.

"Are you afraid?" Graham asked sternly.

"No, I'm not afraid," Tommy said. "But it's from Burns."

"Yes, it's from Burns," Graham agreed. "Read it, Tommy. Then I want you to tell me something."

Tommy drew the letter from its envelope and read it. It was brief and to the point. Burns informed Graham that if Graham didn't leave Tommy alone and let the boy come back to Burns, Burns would "get" Graham. He said Tommy belonged to him by right of an informal guardianship that had lasted for several years.

"What do you want me to tell you, Mr. Graham?" Tommy asked as he handed back the letter.

"I want to know where this man Burns hangs out," said Graham grimly. "I want to hand him over to the police. It isn't safe for decent people to permit a man like him to be at liberty. Where does he live, Tommy?"

Before Tommy's eyes rose the broad, cruel, world-hardened face of Burns. He knew Burns better than any living human being knew him. Burns had been kind to him, but he knew that Burns could be brutal if he chose. Graham would stand no chance with a man like Burns if Burns decided to "go after" him. Burns would strike swiftly and murderously in the dark.

Tommy saw that he was at a crossroads. He must either betray Burns or permit his new friend to be in constant peril. He would have done anything in the world for Graham, because Graham had roused in him a kind of affection which he had never given to any one but his mother before. And yet he could not "throw down" Burns. Burns, too, had been good to him when he was lonely. It was desperately hard to determine which road he should travel.

"You see," Graham broke in on his confused thinking, "Burns said he must have an answer by to-day noon, a personal in the paper, as to what I would do. I put no personal in the paper, Tommy. If Burns is going to get me he's already started after me."

"I know it," Tommy said, "and he'll get you if he can, Mr. Graham." He raised a smileless, pale face to the man's. "But what can I do, Mr. Graham? Burns helped me when I was on my uppers. How can I throw him down? I don't want any harm to come to you, but Burns was my friend."

His voice trailed off as he stood plunged in deep thought. Graham saw the perplexity of an endeavor to be square to the man who had been his friend in the past and the man who was his friend now.

"Never mind, Tommy," he said gently. "I'll take care of Burns myself. I guess it wouldn't be square to ask you to betray him. I hadn't thought of that. Burns must have some good in him some place or you wouldn't be so square with him."

"If you had picked Burns up when he was a boy, you'd have saved him as you're saving me," Tommy said eager-

ly. "If you'd sent me to jail that night, I'd have been worse'n Burns when I got out. That's the way it works."

"Yes, that's the way it works," said Graham, turning away. "Let it go, Tommy."

Tommy stood staring after him as he went across the tracks to his engine. He turned as the engine pulled out and went down to the yard office. He was pondering deeply what he should do. He wanted to help Graham.

Evening was coming down now. Lights began to flicker and glow along the track. At the yard office, as Tommy came into view of it, the lights on the semaphore twinkled into life. Back of him an engine whistle screamed, and the evening passenger-train thundered by. Inside the coaches passengers lolled in their seats or sat at dinner.

They were being whirled through the night, and their lives lay in the hands of the train-crew. Tommy thrilled at the thought. The romance of this world on whose threshold he had his foot laid its spell upon him. If he worked hard he might some day punch tickets on one of those trains! It was worth working for. Burns seemed remote now.

At the yard office he timidly inquired as to how many times he was "out" and found that there was a dozen crews ahead of the one of which he would be a part. He decided to go to his boarding-house and sleep. He wanted to be on his mettle on his first trip.

He lay down, but was restless. A thousand dreams surged through his alert brain. As he lay he could hear the rumble and thunder of the trains on the railroad.

He heard the caller come up the steps after a long while. He sprang up and ran down-stairs. He had the door open before the caller could ring the bell. He signed for his call and ran back up-stairs to dress. He had bought new overalls, jumpers, and cap with money which Graham had advanced, and when he went down the street he looked his part from the toe of his broad shoes to the peak of that cap.

He found the caboose deserted when he climbed into it. Apparently the conductor had not arrived, for his lantern hung on a nail. Tommy took down his own lanterns as he had been instructed, polished and lighted them. Then he went out on the back platform and stood looking down the track.

Forty cars ahead of him the engine was drinking deeply at the water-tank. She backed down in a few minutes and bumped into the first car. There was a rattle and a jolt. The engine took in the slack and her whistle screamed. The train began to move out of the siding. Tommy leaned out and looked ahead. He wondered where his conductor was.

The caboose presently drew up to the yard office. A big man came running out and with surprising agility he sprang up the steps.

"Hello there, Malloy!" he said cheerfully. "You're on the job all right, are you? Got your lamps trimmed and burnin'? Give old Mac a high sign."

Tommy leaned out and swung his lantern to the engineer. The whistle answered and the train moved. The conductor had gone into the caboose and his voice boomed back at Tommy now.

"First trip, eh?" Costigan asked as Tommy went inside. "Well, keep your eyes open. That's all you have to do. Go back far enough with your flag and look out for bums. You better go up-stairs now while I go over my bills. Keep an eye peeled for hot boxes. I got a bug on them."

He eased his enormous body into an armchair and began to examine his papers. Tommy, full of his own importance, climbed into the cupola and looked out of the window.

It was very dark and the wind was rising. A few flakes of snow flickered across the light from the pane. Once

in a while, far ahead, there was a yellow light from the engine as the fireman put on a little more coal. Frog and crossing rumbled beneath the caboose. Switch-lights flashed by.

In half an hour Costigan mounted to his own seat in the cupola.

"We meet a 52 at Ridgeville," he said. "There's another section of us followin' us pretty close. You'll have to get back with your flag till we get into clear. As soon as the engineer slacks down you can tumble off. Don't come in till the engineer whistles you. Always remember that when you're flaggin' for me. No matter what the weather is, stick to your job."

The engine whistled for Ridgeville after a while, and Tommy went out on the platform. The engineer had eased her off a little and the brakes were picking at the wheels as he manipulated his air.

When he was down to fifteen miles Tommy swung off in the dark. He walked back and stood on guard with his lantern. The lights of the caboose slipped away from him. He saw them stop and then start again. He knew the train was pulling in on the siding to clear for the other train of superior rights. Then the engine whistle sounded, and he knew his train was in the clear.

As he plodded along toward the siding he thought of some of the intricacies of the game which Graham had explained to him. He had catalogued all the information Graham had given him, so that it was in an orderly arrangement in his mind.

The D. N. and G. Railroad was not the most modern of lines. It started at a Lake Erie port and meandered down through Ohio to the middle of West Virginia. It was largely a coal road. String upon string of laden gondolas moved over it in a long procession and as steadily moved back empty.

It had a block system, but the standard rules were not rigidly enforced. Trains frequently slipped into blocks close behind other trains when traffic was heavy. The despatchers had to connive at this, for there were not a sufficient number of long sidings to accommodate the big trains.

In meeting and passing other trains they had to make the stations at which the sidings would accommodate them. Hence the work of a flagman called for alertness and faithfulness. Graham had impressed this on Tommy, and Costigan, the conductor, had impressed it anew.

By the time Tommy reached the caboose the train which they were to meet was whistling at the far switch. Tommy stood waiting for his train to pull out. The opposing train flashed past.

He saw the far switch-light turn from red to white. The train began to move. Tommy took hold of the hand-hold and swung himself up. Costigan was in the cupola above him. He had seen Tommy come in and had paid no further attention to him.

As Tommy stood gazing ahead at the switch he would have to close he saw a man run from the side of the track. The man trotted along beside a car for a minute and then he sprang for a ladder and drew himself up. Just before he disappeared between two cars he turned his head and looked back.

The car was then ten feet from the station. The man seemed to have caught sight of Tommy. He continued to stare. The car on which he rode came under the lights. The glimmer of them fell on his face. Though he had pulled his cap down, Tommy would have known the face by a glance at any feature of it. The man was Burns.

Tommy felt his heart drop like lead. Then it began to beat in slow, smothery, painful movements. The wind was cold, but sweat broke out on Tommy's forehead. He saw at once that this was no chance ride that Burns was taking.

Burns had come to see him. Burns was too far a master of his craft to ride over the country on freight-trains. He had money in the bank. He could have traveled in a Pullman. But he was riding the bumpers, and he was riding them merely because he wanted to see Tommy alone.

To the boy it was as if a cold, clammy hand had reached out of that other world he had quit and laid itself on him. He had to shake off that hand somehow.

The switch which he was to close was beneath his feet before he saw it. He stumbled down, swung it over with trembling fingers, and locked it nervously. He gave the engineer a high sign and ran to the caboose. The train moved on into the night. Tommy stood a moment to get his breath; then he went into the caboose.

"You're getting along all right, sonny," Costigan said. "You better take a run over your train now and see there ain't no hoboes stealin' a ride. You may have to kick off a few. You can do it all right before we get to hittin' it up. It's safe enough while we're makin' ten or fifteen an hour. Then they won't bother us."

Tommy climbed to the top of the car in front of the caboose. He stood a moment on his swaying perch and looked about him. The wind was whistling in his ears now and the snow was racing against his face in little icy pellets. He would have enjoyed it all if it had not been for the man riding ahead of him on the bumpers.

He began to move cautiously over the train. Seven cars he counted, and then he stopped and peered over the edge of the car.

Burns had apparently felt the jar of his footsteps—a jar different from the vibration of the train. Burns's broad face was upturned. He stared at Tommy with unwinking eyes. With a glance behind him Tommy climbed down to the bumpers.

"I was lookin' for you," Burns said. "What kind of a game is this?"

"I've turned decent," said Tommy, with something of defiance in his tone. "I'm workin' on the road."

"I heard about it," said Burns bitterly. "I started out to find you when you didn't come back. I thought something had happened to you. I run the risk of bein' arrested. I thought you needed help. You threw me down on the first job I gave you. You might have got something worth while out of that safe. They was money and jools in it."

The November wind whistled shrilly over their heads and sang in the telegraph-wires along the track. The train clanked on. Tommy stood looking down at the rails shining dimly in the dark.

"Well, what you got to say for yourself?" Burns asked at last.

"Nothing," said Tommy. "I'm through with the old game. It doesn't pay."

"Oh, it doesn't pay, hey? Well, it paid you well enough when you had the typhoid and no friends. It paid well enough for you to live off me when you was on your uppers, didn't it? Eh?"

"Oh, Burns, don't," Tommy pleaded. "I didn't want to throw you down, but I see now I wasn't cut out for a thief. The first decent people I met that acted on the square with me won me away from you. That's how I am, I guess. I must have been born to be square. You'll have to get off the train, Burns."

Burns glared at him. Whatever kindliness had been in the man's heart toward the boy was snuffed out.

"You whipper-snapper!" he ground out. "I've got to get off the train, eh? You talk to me like that after all I've done for you, do you? Why, you ought to get down and eat out of my hand. I come to you peaceable to make you an offer and you threaten me. I s'pose you'll put me off the train, will you?"

"Look here, Burns," Tommy broke out, "I don't want any row with you,

but I got special orders to keep bums off the train. You're riding like a bum—"

Burns interrupted him with a slap across the cheek. Tommy put up his hands and they grappled. Tommy felt Burns's hot breath on his cheek, felt Burns's hands creep up to his throat. And he knew there was murder in Burns's heart.

This was a new Burns to the boy—an infuriated, merciless thug who would kill as lief as not. The realization struck terror into the boy's heart. He fought harder, but he was no more a match for Burns than he had been for Shorty.

Burns's big arms were crushing the breath out of him. In the struggle Tommy had lost hold of his lantern and that precious thing went clattering and smashing to the ties below.

Tommy's footing on the bumpers was precarious. Burns was surer. The man was roughing the boy toward the edge of them. Tommy had no doubt that Burns intended to throw him off—under the wheels if he chanced so to fall.

They were at the end of the bumpers. Burns bent the boy backward, exerting all his great animal strength. The boy's hand came into contact with the ladder. He clutched it and hung on grimly. He felt his fingers slipping.

Then Costigan, a man stronger even than Burns, reached down from above and caught Burns by the throat with two great, hairy red hands. He jammed Burns's head forcibly back against the car. Burns released his hold of Tommy to meet this new attack. Tommy got up the ladder on unsteady feet.

Costigan released one hand, knocked off Burns's cap, and twined the hand in Burns's hair. Then he began to knock Burns's head against the end of the car with vicious blows. Burns's hands dropped.

His head drooped. Exerting all his strength, with a might heave Costigan drew him up beside him and released his hold.

Burns lay flat on the car for a moment, getting his breath.

Then he sat up.

"Get off now," Costigan ordered. "If I ever catch you ridin' on my train again I'll turn you over to the police. Hear me?"

Burns slid to the ladder and climbed slowly down. He stood a moment on the bumpers, his face upturned. Tommy caught the malevolent glare of his red eyes. Tommy knew that Burns was now out to "get" him, too.

Burns dropped from the train, shoving himself clear of the wheels.

Tommy heard him slide and scramble in the gravel.

"Did he hurt you?" Costigan asked.

"No," Tommy gulped.

"You better go back to the caboose and rest a few minutes," Costigan said. "Don't be so easy with one of those guys next time. Slam him over the bean with a couplin'-pin if he gets rough."

Tommy went slowly back to the caboose. He understood that he had cut loose from his old life entirely now. Burns had severed the bonds with his own hands. Tommy breathed a sigh of relief. At least the lines of battle were clearly drawn. He was no longer confused by a sense that he should be loyal to Burns.

Two nights later, coming in on his run, he met Graham in the yards as Graham was going out.

"Lily was asking about you to-night, Tommy," Graham said. "You better go up and see her. She's a nice girl. It won't do you any harm to cultivate the acquaintance of a girl like that, Tommy."

"I'll go up to-night," said Tommy. He paused and looked at Graham. "Have you heard anything more from Burns?" he asked.

"Nothing. Have you?"

"I'll tell you later," Tommy said evasively.

A plan as to how to deal with Burns was forming in his mind. He was not yet ready to disclose it to Graham.

CHAPTER VII.

The Light in the Window.

LILY received Tommy in the Graham library. Mrs. Graham, with that democratic notion which had led her husband to fire on the road, gave the girl the use of the big room at any time when she was not using it.

Tommy sat in a big leather chair with the girl opposite. To the boy there was something incongruous in his being there. He seemed indeed to have got very far away from his old life. His forcible entrance into this very room seemed a remote happening.

"It's pretty soft for you, isn't it, Lily?" he asked, laughing. "When you lived on Quay Street you never thought you'd land in anything like this, did you?"

The girl turned her lambent eyes on him. Tommy's smile died. Something queer and unusual stirred in his breast. Lily was far prettier than he had been aware she was. What struck Tommy first was how clean she looked. There had been times in the old days when she was quite a dirty little girl with untidy hair blowing about her face.

Now she was a young woman, upon whom this life had somehow set its stamp. Tommy began to feel a little ill at ease. Lily seemed far above him. Apparently Lily saw something of his thoughts in his face.

"How are you getting on, Tommy?" she asked.

Tommy told her of his work. As he talked his eyes glowed and the color in his face deepened. She shivered when he told of his fight with Shorty. She saw that some of the marks of that encounter were still on his face.

"He was jealous; that was all," she said. "You'll make friends among the good men, Tommy, because you're good yourself."

Tommy blushed as vividly as the girl would have done herself.

Two hours slipped by rapidly; then Tommy got up.

"You don't have to go yet," she objected. "It isn't nine o'clock."

He looked at the carpet and drew a pattern on it with his toe. She saw he had something on his mind.

"What is it, Tommy?" she asked.

"I oughtn't to tell you," he said. "I didn't mean to, but I guess I better. Somebody might find out about it and think I was playing double. I've got to see Burns to-night, Lily."

"Burns!" she exclaimed. "That man?"

He nodded. They stood looking at each other, the faintest shadow of distrust in her eyes.

"Why do you have to see him?" she demanded. "I thought you were through with him. Mr. Graham would not like it."

He told her of his meeting with Burns and what had happened.

"I can't throw Burns down," he said. "He was my friend, you know. But I'm going to warn him that he's got to leave this town. The town ain't big enough for him and me."

"But can't you write to him?"

"No," Tommy said decidedly. "That wouldn't go with Burns. He'd throw the letter in the fire. It would only make him sore. I've got to tell him face to face."

"You haven't got a longing to get back to that old life, have you, Tommy?" she asked.

"I'm telling you straight just what I'm going to do," he answered.

They had moved to the door. They stood close together. The boy, as he answered her, had lifted his head. There was a look of frank honesty in his face. The girl flushed and her own eyes fell. Tommy's heart gave a leap and then began to beat tumultuously.

Slowly the girl raised her eyes, and they looked long at each other. They

were both curiously aware that they were no longer children together. They had passed to man and woman, and they were being propelled toward each other by an emotion new to both of them.

The girl put out her hand. Tommy took it and held it a moment.

"All right, Tommy," Lily said. "I believe you. Take care of yourself."

"I will," he said. "When can I see you again?"

"Any time you want to come. You can call me on the phone and let me know. Mrs. Graham lets me use it."

"Good-by," Tommy said.

"Good-by, Tommy," the girl replied.

He passed out of the door and down the wide stone steps. He knew the girl was watching him. In the shadow of the maples he paused and looked back. She was framed in the doorway, the light from the hall at her back. She looked slender and girlish in her neat dress. Her brown hair was soft. Tommy felt a wistfulness in her attitude.

Though she could not see him, he waved his hand. Then he went down the street, turning up his coat collar and pulling his hat down over his eyes.

His way led him for a mile on this street of handsome residences. Suddenly he came abruptly to the river. He followed the bank of that into a squalid district of stores whose back yards ran down to the river's edge. He came to a tumble-down bridge and crossed it. At the end of the bridge an unpaved road wavered away into the darkness. Tommy stood still a moment and drew a deep breath.

Many times in the night he had gone this route without thought of danger, but to-night there was something about it that stirred him and made him apprehensive. He seemed an alien amid that which had once been familiar.

He walked out the old road until he came to a stone quarry. Near this stone quarry there was a row of dilapidated tenements. In the tenements the quarry workers lived. Burns had chosen rooms in one of the tenements for his home. He had calculated that this would be the last place the police would seek for him.

Tommy drew up under a big old tree and stood looking at the tenement.

In the old days he had had a signal arranged with Burns. If a light shone from one of the windows Burns was at home and the way was clear. If no light shone Tommy was to wait till Burns appeared. In spite of his security Burns took no chances. He knew that if he was arrested Tommy could do him more good outside of jail than inside.

There was a light in the window.

Tommy lifted a foot to start toward the house when he heard a step among the blown leaves behind him. He dodged behind the big tree. A man came to the tree and passed it. He went swiftly on toward the tenement. Something familiar about him roused Tommy's interest. He was not a quarry worker. Those were stolid, slow-moving men, many of them bent by their heavy toil. This man, despite a squat figure, moved alertly.

When he was a dozen paces beyond him Tommy stepped from his hiding-place and followed him. The man stopped before the tenement in which Burns lived and looked up at the light in the window.

"That's a signal to him, too," Tommy said. "Burns has something on with him."

The man went to the side of the building where a rickety staircase on the outside led to the floor above. An oil-lamp burned at the top of the stair. The man climbed up. The light from the lamp fell on his face. Tommy gasped and stared. The man was Shorty Briggs.

Shorty disappeared into the doorway. Tommy ran to the steps and went up them two at a time. He heard Shorty knock twice on Burns's door. The door was opened, admitting Shorty. Tommy ran along the hall

as softly as a cat. He knew the hall. There was no danger of a misstep.

He stopped before Burns's door and listened. There was no sound in the room for a minute. The men had evidently exchanged greetings and had fallen into silence. Then Tommy heard the clink of glasses. He knew Burns and Shorty were drinking together.

There was the scrape of two chairs on the floor as they were drawn up to a table. Then came Burns's heavy voice:

"The reason why I asked you to come up here was because I thought maybe you could use a piece of loose change."

"I can do that all right," Shorty returned.

"I will tell you what I want," Burns said. "You know Graham? Don't like him, eh? Well, that's good. You are the man I want. I want to get Graham. I want to get him two ways. I'm going to blow the safe in his house and I'm going to knock his block off."

"How much do I get?" Shorty asked.

"Can you get off duty for two weeks?"

"I guess so if I report sick. We're pretty busy just now. They wouldn't stand for a regular lay-off."

"I'll give you two hundred dollars if you'll work for me for two weeks."

"I'm your man," Shorty said, with a kind of gasp.

"I understand this fool Graham is makin' some kind of a grand-stand play firin' an engine?" Burns said.

"He has been firin'," Shorty answered. "After to-morrow he runs an engine. You see, he owns about all the stock in the road, and he can do what he pleases. He makes the play that he's learnin' railroadin' from the ground up.

"Every once in a while he picks up some bum and shoves him into a soft job with a lot of jolly to go along with it. Him and his wife is bugs on that game. That's what Graham done for that kid you was askin' me about the other night up at the saloon."

"That's why I'm goin to get Graham personally," said Burns, with an oath. "He's taken my means of livin' away from me. I was just gettin' that boy along to where I could use him. He's clever, Tommy is, and the fine thing about him is that nobody would suspect he was crooked.

"He can smile at a woman and make her fall in love with him. A cop wouldn't pinch him unless he caught him in the act. I'm gettin' old myself. I can't do any work much longer. Tommy would have been my right-hand man if he hadn't bungled that job at Graham's and if Graham hadn't soft-soaped him."

"You want to get him back?" Shorty asked.

"I've got to get him back," Burns said, with another oath. "I haven't time to train another boy. I'll tell you what I want. I want to frame a deal whereby I can get this Graham into some kind of a mix-up and have him disgraced and hurt at the same time. Can we pull it off?"

"You want to have it seem he made a mistake or something like that?" Shorty asked.

"That's the idea," Burns said.

"Well, an engineer with a jag on will get him quicker'n anything else," Shorty said.

"You can't hand that to Graham," Burns said. "He doesn't drink. I been finding out about him."

"Well, I do' know—" Shorty said.

Tommy understood at once, so used was he to the workings of Burns's quick mind, that Burns had led Shorty into a field in which Shorty only wandered aimlessly about. Shorty was a plug-ugly without brains. Burns would have to do the thinking."

There was a long silence in the room. Tommy could imagine Burns staring down at the table, plunged into deep thought.

"Well, I'll figure out what I want you to do," Burns said at last. "Come

here every night about this time. If there's a light in the window, come up. If there isn't, go back. Keep posted on Graham's movements. That's all I want for the present."

The chairs scraped as the men rose.

"How about a little advance on that two hundred?" Shorty asked.

"All right," Burns said.

Tommy slipped back to the dark end of the hall. In a few minutes Shorty came out and went down the stairs. When the door was closed and Shorty's footsteps had died away Tommy went noiselessly down the stairs.

Shorty was nowhere in sight.

In the gray of the next morning Graham climbed down from his seat on the fireman's box for the last time. When next he went out he would sit on the right-hand side of the cab. As he started to leave the roundhouse a boy with tired, red eyes—a boy who had spent the night in the roundhouse—rose to meet him.

"What's the matter, Tommy?" Graham asked in surprise.

CHAPTER VIII.

A Pinch of Dope.

IN a snowstorm which hurtled down the tracks and swept through the yards Graham backed his engine down to his train to take out his first run as an engineer. Pride was running high in him. Though, as Shorty had said, he had a strong pull on the road, this promotion had come to him without his having exercised it. He had fired till he was at the head of the list for an engine.

He had taken no man's run away from him.

Two flagmen had reported sick—Shorty and Tommy. Tommy had been loath to do this. He wanted to keep his record clean. He knew it would do him no good to be off duty in this busy time even with the excuse of disability. He wanted to advance. He wanted to keep Graham's esteem, and his interest in Lily had grown since the night he had last seen her.

Graham leaned out of his cab window and looked back while the head brakeman coupled the engine to the first car. A smile of satisfaction played over his face. He did not see Shorty lurking in the shadows of the coal dock. When the engine was coupled up Graham sprang down and ran into the yard telegraph-office. The conductor came in a moment later. The operator hadn't their orders "completed," and they had to wait a few minutes.

The fireman of Graham's engine got up on the tender and began to throw down coal. Shorty emerged from the shadows, moving as quickly and silently as a ghost. With a swift look about him to see that no one observed him, he pulled himself up into the cab. Graham's lunch-bucket stood against the boiler where the food would keep warm.

As Shorty stooped over it Tommy's white face appeared just above the step of the gangway.

Shorty lifted some of the food from the bucket and sprinkled a powder over it. He replaced it carefully as it had been and turned. Tommy ducked and ran. Shorty jumped from the engine and the shadows took him.

Graham and the conductor came from the telegraph-office, their "flimsies" in their hands. The conductor ran back to the caboose. Graham boarded the engine. As he put his hand on the throttle Tommy appeared beneath the window.

"Mr. Graham," Tommy whispered.

Graham leaned from the window. In astonishment he stared down at Tommy's white face. He was about to speak when Tommy beckoned him to the gangway. Graham went to the gangway and leaned down.

"I thought you were sick, Tommy," he said severely. "What're you doing out in this storm?"

"I been watching," Tommy whis-

pered. "You didn't seem to be scared enough about what I told you yesterday. Don't eat your lunch. Throw it away."

Graham squatted down so that his face was close to the boy's.

"What's the matter with you, Tommy?" he demanded. "Are you out of your head?"

"They're after you, just as I said they'd be," Tommy replied. "Shorty was in the cab just now and doped your lunch. I saw him. I been trailin' him for a couple of nights. He's reporting every move you make to Burns. They think if they can dope you, you'll make a mistake and get into trouble."

For a moment Graham was too amazed to speak. He had been concerned when Tommy had reported sick. He had meant to go to see him, but had been called for this run before he had time.

"All right, Tommy," he said. "I won't eat the lunch. I must get those fellows as soon as I get back. I can't leave my engine now. I've got to make good on my first run. There are a lot of knockers and soreheads on the road, you know. What're you going to do?"

"I'll keep track of Shorty and Burns," Tommy said. "I'll watch your run and I'll meet you when you get in."

"You won't get into any trouble, will you, Tommy?" Graham asked.

"No, I guess not," Tommy answered. "But it doesn't matter much about me. I want to pay you back for what you've done for me, Mr. Graham—the way you've treated me."

Graham pulled off his glove and shoved his hand down to Tommy. Tommy caught at it. Graham gave it a strong pressure. Tommy withdrew his hand quickly and ran back to a telegraph pole and concealed himself behind it.

His lips were tremulous, and for a moment he had to hold his lids tightly shut to keep back the tears. Graham had stirred to their depths whatever was fine and clean in him.

From the rear of the train the faint glimmer of a lantern, lifted and lowered, came through the swirling storm. Graham went to his seat, and the long train started on its journey. Graham took up his lunch bucket and put it under the seat.

Tommy, shivering behind the telegraph pole, saw Shorty come out on the track when the lights of the caboose had disappeared. Shorty started down the track, his head bent to the blast.

Tommy followed at a discreet distance. They came to a saloon and Shorty went inside. Shorty's brief experience with Burns seemed to have made him reckless. A little easy money had intoxicated him. Not only was he taking chances by being seen about when he was supposed to be sick, but he was breaking the rule which prohibited trainmen from frequenting saloons.

Tommy stood across the street to await developments. He knew Shorty could do nothing important in the saloon. He was prepared to follow him when he should emerge.

As Tommy stood there a man, also bent against the blast, came down the street from the direction opposite to that from which Shorty had come. Tommy knew him instantly. This was Burns coming to meet with Shorty.

Burns entered the saloon. Tommy ran across the street. There was a stone walk from a gate to the rear door of the saloon. Tommy ran along this walk till he came to the door. He listened for a few seconds. There was no sound within. Noiselessly he turned the nob. The door gave. He pushed the door wide. He saw a room with a table and a few chairs in it. He slipped inside and closed the door. As he stood in the gloom which one window relieved but little a hand was placed on the knob of the door leading to the bar.

Tommy gazed about him wildly. Unless he acted quickly he was about to be discovered. Diagonally across the room was a third door. On a chance Tommy sprang to it. It opened at his touch. He leaped inside and closed the door. He was in complete darkness. He moved a foot cautionsly and it struck a case. There was a clink of glass in the case. Tommy understood he was in a kind of closet in which empty bottles were stored.

He knelt before the door and peered through the keyhole. The table was in the line of his vision. Shorty and Burns came to the table and took chairs on either side. They sat in silence till bottles of beer were brought to them. They drank a little and then Burns lifted his head.

Tommy was shocked at the change in Burns. The boy's old friend was plainly sick. His face was white and there were deep lines on it. He looked worried. But for all his physical condition, Tommy saw that he was hanging to his purpose of revenge on Graham.

"Well?" he asked.

"I done it," said Shorty. "Put the dope all over his eats. He'll get enough of it to make him excited for a while and then loggy. He ought to get into trouble all right before he takes that train through the storm."

Burns's dull eyes lighted up.

"Can you get information for me as soon as the thing happens?" he asked. "I want to get it off my mind."

"It'll be kind of risky for me to be hanging around the road," Shorty said. "I'll be losing my job first thing I know."

"You got two hundred, didn't you?" Burns demanded. "I've paid you all I agreed to. You'll get more when I get my kid back and set him to work. I can't do anything. I'm about all in. You can see that."

"You'll have to make it worth my while when things come your way," Shorty said sulkily.

Burns leaned to him. Tommy felt sorry for Shorty. He had walked straight into Burns's power. Tommy knew how cruel and unscrupulous Burns could be.

"You'll do what I tell you to do from now on, mister," Burns said grimly. "Don't forget you just doped an engineer's food. They could send you to the pen for that."

"You told me to do it," Shorty said, his face red.

"Did I? Well, if I put a couple of cops I know onto you, I guess they won't bother me. They'd be glad enough to use old Burns for a stool pigeon. Do you get me, mister?"

The eyes of the two men challenged each other. But Shorty was new to the game; Burns was an old hand. His eyes were as hard as steel. Shorty's wavered down.

Burns laughed.

"You go down to the yard office and find out what happened to Graham," Burns said, with a new tone of authority. "Come to my house as soon as you hear anything. I'll be there."

In half an hour Shorty entered the yard telegraph office. He was angry, but he could do nothing but obey. Tommy had seen him enter. The boy was uncertain how to act. At last he resolved to put up a bold front.

He entered the telegraph office.

Shorty and the operator were talking about railroad matters in a casual way. Shorty looked up as Tommy closed the door behind him. A little flush came into his face. But he had other things to think about than his enmity toward Tommy.

"Hello, kid," he said. "What you doin' down here?"

"I'm layin' off," Tommy answered. "I had a bad cold. It's so lonesome up in my room I couldn't stand it. So I came down here."

"That's how it was with me," Shorty said, with relief in his face. Tommy picked up a paper and began to look through it. Shorty directed his attention to the operator again.

"Graham take his run out?" he asked.

"Yeh," said the operator, with a yawn. "He's on a 99."

"How's he makin' it?" Shorty asked.

"He's wheelin' 'em," the operator said.

They sat in silence for a while. Outside the storm howled its will. Night was coming down on the wings of it. A switch-light a dozen yards away was obscured. The sounder clicked busily. The operator looked at the clock. It was ten minutes past five.

Shorty's eyes followed the operator's, and he, too, noted the time. Graham would tackle that lunch before long! Shorty felt a wave of exultation go through him. He rubbed his chin where Graham's fist had been planted.

The operator leaned to his sounder. It paused, standing open. Then it clicked metallically.

"There's an OS from Graham's train now," he said. "They're by Ridgeville. Made fifty-nine miles in two hours and fifteen minutes. Met a couple of trains, too. That's pretty good wheelin' for a new man."

"Yes," said Shorty.

Back of his paper Tommy smiled. He was intensely interested in Shorty's game. Shorty was sitting there in safety while he waited for news of a mishap to the man he was trying to get. His way was easier than most criminals.

An hour and then two hours passed. It was a full hour later than the time at which Graham should have partaken of the poisoned food. Shorty shifted in his chair.

"Where's that 99 now?" he asked.

The operator saw nothing unusual in the question. Trainmen were always interested when an engineer took out an engine for the first time. They wanted to know whether he could make good or not. The operator bent his attention on the sounder.

"The despatcher is putting out an order to the 99 at Perry now," he said. "I guess they're near Perry by now."

Again there was silence, save for the ticking of the sounder.

"Perry says they're coming," said the operator at last. He looked at the clock once more. "Graham is still wheelin' them all right. Why, none of the veterans could do any more than that. He's practically on time. And he's half-way over the district in less than five hours. He'll be in the terminal by one to-morrow morning."

Shorty got up and went to the window. What had happened? Graham, with the lusty appetite of a healthy man, must have eaten his lunch. And Burns had assured Shorty that there was enough dope in the packet to make Graham "good and dopey."

The uncertainty shook Shorty's nerves. He felt the need of a drink. He turned to Tommy. His enmity toward the boy seemed to be swallowed up in his anxiety.

"Let's go get something to eat, kid," he said. "I'll buy."

Tommy rose with alacrity. Things were coming his way better than he had dared hope. He could keep Shorty in sight now without having to stand in cold doorways or hide behind telegraph poles. They left the telegraph office and went down the track.

"We'll go over to Martin's," Shorty said. "It's against the rules, but I guess a little licker won't hurt us."

They went to the saloon. Tommy refused to drink. Shorty had three drinks before he would consent to eat. As he ate his hands trembled. Tommy knew that his nerves were quivering. It was Shorty's first experience in a dubious game, and since the game was apparently going against him, Shorty was becoming frightened.

After he had eaten he got up and began to walk about. An hour had passed. A few hours more and Graham would have covered the district. Shorty proposed a game of cards. They played for another hour, Shorty in a

nervous, uninterested way. At last he threw the cards down on the table.

"Let's go over and see what's doing on the road," he said.

They went back to the telegraph office. The operator was stretched out on the telegraph table, with the lights turned down.

"Don't get up," said Shorty. "We don't want anything special."

The operator dropped his head back to the crook of his arm. Shorty stood by the window, his back to the room. He had all he could do to restrain his impatience. Yet he could not let Tommy and the operator know that he was interested in Graham's train.

The despatcher called the office. The operator slid from the table, turned up the light, and began to copy an order. When he was done, he settled back in his chair and lit his pipe.

"Graham is right on time," he said. "There they go by Tremont Siding. They've got about fifty miles more and two trains to meet. Graham certainly is doing fine. He'll go in on time."

Shorty made an exclamation of angry disappointment. The operator looked at him.

"What's the matter, Shorty?" he asked. "Say, you don't look well. You better go home and go to bed."

"I guess I will," Shorty said, and without further word to them he went out into the night.

"I guess I'll be on my way, too," Tommy said.

The operator prepared to sleep.

When Tommy reached the track, he could see Shorty plunging through the storm. Tommy turned off the track. He knew a shorter and quicker way to Burns's tenement.

CHAPTER IX.

Back "Home."

TOMMY was hidden in the dark hall fifteen minutes before he heard Shorty's step on the stairs. The light had been burning in the window of the thief's room and Shorty had come directly up. He knocked on Burns's door and Burns bade him enter.

The door closed behind Shorty. Tommy sped along the hall and crouched outside the door.

"Well, did you get him?" he heard Burns ask.

"I did not," Shorty answered.

"Balled things up, did you?" Burns sneered angrily.

"No, I didn't ball things up," Shorty returned with some heat. "I spread the dope just like you told me to do. If he ate any of his lunch and that dope was what you said it was, we should have got him. But he will go in on time. We not only didn't get him, but he made a record for a new man. Not many of the old-timers would have taken that train through on time on a night like this."

"Where did you get your information?"

"I hung round the yard telegraph-office till he was nearly over the district. Risked my job doing it too. Somebody 'll be reportin' me first thing I know."

"Well, we got to go through with it now," Burns answered. "I got to get my kid back. I had to go see a doctor to-day. He said my heart was kickin' up on me. It's tough to lose that kid just when I need him so. I'd go out and blackjack Graham, but that wouldn't do me any good. I want to get him in the performance of his duty. He's put a kink in my business, and I want to put a kink in his. Got any ideas?"

"I ain't goin' through with this thing for the little piece of money you've given me. I've got to have more. It's too risky."

"I been lookin' for that kind of a touch," said Burns. "Well, I drew some money from the bank to-day. I'll give you two hundred to-night and three hundred more when you land Graham. That'll be more money than you ever had at one time. What 'll you do for it?"

"Well," said Shorty slowly, "if a man loosened the forward set-screw on the side-rod of that old engine Graham runs, there 'd be some hell to pay. I do' know as you could do it with a modern engine, but that old scrap-heap was built in war times, I guess."

"What'd it do?" Burns asked.

"When the screw worked loose and the cap come off, that rod would thrash around like a great big steel arm," Shorty answered. "It would be likely to murder the engineer—come crashin' down through the top of the cab and smash his gear and mebbe him to pieces."

"If he escaped, could he stop the engine with the gear smashed?" Burns asked, intent, like the criminal he was, upon giving this chance its final analysis.

"Well, there's a valve outside that they use to shut off the steam if anything should go wrong with the throttle," Shorty said. "A man could crawl out to that and shut off the steam, but if he wasn't cool and steady he'd stand a good chance of falling, either off the engine or against the boiler."

"All right," Burns said in a tone of relief. "We'll try it. Confound it, I'm taking chances to get this man. And I haven't got much time to spare. Your idea appeals to me, because after a mix-up like this I guess Graham will be content to leave railroadin' alone. It ought to eat a man's nerve up. Have a drink."

Burns's chair scraped as he rose. When Tommy heard Shorty outline his murderous plan, his heart leaped and then seemed almost to stop. He could scarcely breath. To relieve the constriction he lifted his head. His one thought was to get to Graham and warn him before Shorty could act.

He straightened up suddenly, preparing to make a dash down the stairs. He was in a kind of panic. As he rose his head struck the door-knob. The sound of the impact seemed very loud in his ears. There was an instant hush in the room, and then some one sprang for the door. It was wrenched open.

Tommy stood outside speechless and paralyzed.

Burns stared at him for a moment, and then his big hand shot out and grasped Tommy by the collar. He dragged the boy into the room and flung him into a chair.

"What 're you doin'?" he demanded. "Did Graham send you here?"

Tommy's wits had gathered swiftly. His brain began to work fast. He saw he would have to match Burns's ruthlessness with deceit.

"Why, I came back home," he said breathlessly. "Ain't you glad to see me? I'm sick of the road."

Burns continued to stare at him, questioning the truth of what he said. But it was for this that Burns had been hoping, and his hope made him credulous.

"When did you quit the road?" he demanded. "When did you see Graham?"

"I didn't go out to-day," said Tommy rapidly. "I reported sick, but I wasn't sick. I'm tired of it, I tell you. Too much work and too little money. I haven't seen Graham in two days. You can ask Shorty."

Shorty breathed a sigh of relief. He had been startled out of speech when he saw that he was caught in a conference with Burns.

"That's right," he told Burns. "The kid didn't work to-day. He was hanging around the yard office all evening with me."

"What took you to the yard office?" Burns demanded, with a return of his suspicion.

"It was like this," said Tommy. "I was going along the track, startin' over here by a short cut. It was cold and snowin' and I went into the yard office to get warm. Shorty was there. Me and Shorty had a fuss. He must have known I was off on sick leave. I thought he'd report me. I was afraid to leave for fear he'd follow me."

Shorty gave a quick laugh.

"We was playin' the same game in a way, Burns," he said. "I was kind of suspicious of the kid, too. I know how sick he's got of flaggin' trains. I'm good and sick of it myself. It's fierce. Long, hard hours and nothin' much for it. I ain't surprised the kid come back to you when he can live on easy street without workin'."

"What did you quit me for in the first place, Tommy?" Burns asked.

Tommy lifted his head and smiled his old ingratiating smile. He knew he had won against the crafty Burns and the brutal Shorty.

"Why, Graham had it on me," he answered. "It was jail or the railroad for mine. And Graham said he would have the police put me through the third degree till I told who I was workin' for. He said he knew a kid like me wouldn't have tried to blow his safe unless I had got instructions some place. He said he'd be satisfied if I reformed and went to work. He's strong for that reform stuff. What could I do, Mr. Burns?"

"You did just right, Tommy," Burns exulted. "Why didn't you tell be this that night on the train?"

"I thought you'd tumble," Tommy said. "Costigan, the conductor, was right behind me. I had to hang a bluff. I'm sorry he shoved you off the train. But I couldn't help it. He's a strong man and he would have landed me, and I'd never have got back to you if I hadn't played the way I did."

"That's right," said Shorty, pouring himself out another drink. "Costigan is a bull and a friend of Graham's. Kid, you're smarter than I thought you was."

"Sit down, Tommy," Burns said; and Tommy knew that he was back "home"—back to play the game to the limit against Burns.

He now felt that he had no more need of being loyal to Burns. Burns, he saw, was worse than a thief. He was at heart a murderer. Tommy understood that he could no longer consider Burns if he was to continue in the honest path on which Graham and Lily had set his feet. He would have to eliminate Burns from the equation.

"How about Graham now?" Shorty asked. "You still want to land him?"

"I sure do," said Burns. "I ain't so easy satisfied. Besides, I want to put him out of commission. Land him in a hospital for a few days. That 'll get him out of the way, while Tommy finishes his job on the safe. Eh, Tommy?"

Tommy nodded, his face a little white.

"You go ahead and land Graham, Shorty," Burns said. "Tommy can stay here with me."

Tommy's heart sank once more. He seemed to have overplayed his hand. Shorty would be free to work his will on Graham. Tommy would virtually be a prisoner. But he could not volunteer to help Shorty. That would rouse Burns's suspicions again. He could only wait and hope for a chance to escape.

Shorty left in half an hour. Burns brought food for Tommy and sat opposite him while he ate it. There was a little color in Burns's pallid face now. Things seemed to be coming his way.

The old thief babbled. He told Tommy of the trouble he had been having with his heart. They would blow Graham's safe, and if they got the wealth that was reported to be in the safe in money and jewels they would journey to a warmer country and there sojourn. They could live at their ease, perhaps doing a job now and then.

Tommy made a counterfeit answer to the glow that was warming Burns. But all the time his heart was like ice. He was turning this way and that, seeking a chance to reach Graham and warn him.

At last Burns yawned and said he would go to bed. He told Tommy that Tommy's old bed was ready. He lit a small lamp and started for his

own room. As he passed the boy, he put his hand under his chin.

"You're goin' to play square with me, ain't you, Tommy?" he asked. "Remember I was good to you and I'm old and sick now."

Tears filled the boy's eyes. He could not stay them. Burns had been good to him. It seemed cruel to have to strike the old man when he was down. But Tommy saw only one avenue for himself. He had to follow it to the end. A desire for decency was in his heart as strong as the lust for revenge and loot was in Burns's.

Tommy's tears seemed to satisfy the thief. He patted the boy's head and continued on his way to his room.

"You better get to bed, Tommy," he said. "You want to get all the rest you can to-day."

Tommy went to his room, which adjoined Burns's. He pulled up the shade a little. The gray light of the November morning filtered into the room. Afar Tommy heard an engine whistle. He shivered. He must get out of here soon.

He sat down on the edge of the bed and took off his shoes. He let them thump to the floor so loudly that Burns could not fail to hear them. Then he waited a while and lay back across the bed, fully dressed. He moved once or twice so that the springs would creak. Then he lay still. In a moment he heard Burns climb into bed. Ten minutes later he heard the old man's gasping snore. He knew that Burns slept, and Burns was a sound sleeper in his own home.

Inch by inch, noiselessly, in the way Burns had taught him, he drew himself to the edge of the bed. He slipped to the floor and pulled on his shoes. Drawing the collar of his coat about his throat and his cap over his eyes, he turned the knob of the door. He gained the outer room, crossed that and came to the hall.

With his hand on the knob he listened. Burns snored on. Tommy turned this knob as gently as he had turned the other. He was in the hall. He glided down the stairs and stepped out into the wintry street. Only an early milkman was in sight. The storm had increased. The wind howled and the snow was a white cloud.

Tommy started west. He knew that in a few hours Graham would leave the other terminal on his return trip over the district. Somewhere in the vicinity of the yards he supposed Shorty was lurking. There was a morning passenger-train soon. It was Tommy's plan to board the passenger at the station and ride over the road to meet Graham. Graham would then go into the terminal prepared to deal with Shorty and Burns.

CHAPTER X.

A Borrowed Lantern.

THE passenger-train was pulling into the station when Tommy arrived. He started for one of the coaches and then he suddenly stopped, struck into dismayed inaction. He had no money. Without money he could not ride on the passenger.

The conductor gave the go-ahead signal. The engine bell started to ring. He saw the conductor and the brakeman climb aboard. The train started to move out of the shed.

Tommy glanced about him. There was no one in sight. The storm shut him away from the train-crew, even if one of them should be watching. The baggage-car came abreast of him. The train was gathering momentum.

Tommy ran alongside the baggage-car, caught at it with sure fingers, and drew himself up between the car and the engine. The engineer and the fireman were in the cab. Back of him were the train-crew. He was safe for a time.

The train pulled out and gathered speed strongly and easily. Soon it was gliding through the white cloud of snow. Some of the snow blew down

on the boy and he was soon covered from head to foot. He could see nothing on either side, except as a building now and then bulked gray through the white. Tommy was not altogether familiar with the passenger's schedule, but he knew its stops were few.

Forty miles the train went and then it drew up at a station. Its pause was brief. A passenger ran from the little station at the side of the track and got on board. Then the train was away again. It gathered speed anew, despite the perilous going. Tommy, swaying with the car, clung to his perch.

For fifty miles further the train leaped forward. Then it stopped at a a water tank. Tommy was not sure where he was. His familiarity was not enough to enable him to determine. Cautiously he advanced to the edge of the car. He poked out his head to glance up the track if the storm would permit him to see.

As he did so a brakeman came by. Tommy was bending a little, so that his face was not five inches from the brakeman's. The brakeman's action was prompt and decisive. He reached up and seized Tommy by the collar. Tommy landed in a heap on the cinders.

"What're you doing there?" the brakeman cried. "If I had time and it wasn't for this storm, I'd have you run in. Get along."

He dragged Tommy to his feet, turned him about and, with a vigorous kick, sent him rolling down the embankment. Tommy picked himself up as the train started again.

Smiling grimly, he crawled up to the track and walked till he came to the water-tank. There was no station in sight. There were only white, obscured fields on either side.

"I guess I'm in for a stroll," Tommy said to himself. "I've got to get to a telegraph office and find out if Graham has started this way. It must be getting along in the morning. If it's a busy day, he'll be getting out before long." He thought for a moment. "He's been in for quite a while now," he added. "He may be on his way already."

He started down the track, his head bent. The air was growing colder. The snow still dropped down heavily. Tommy covered what seemed a long distance, but what was really about three miles. He was growing short of breath. The walking was hard and the wind whipped viciously in.

Suddenly he stopped. Beneath his feet there was a queer vibration. He looked back and then in front of him. A gray shape loomed up out of the storm. Tommy jumped to the side of the track. An engine rumbled by him. And then a long string of cars began slipping past.

As the engine went by, the fireman opened the firebox door. The light from it illuminated the cab. Tommy plainly saw the engineer. He stood half paralyzed till the caboose went by him.

"That engineer was Braggins," he told himself. "He's out just ahead of Graham. They were carrying green flags. Why, Graham must be on the next section of this train. He may be coming along any minute. I wish now I'd waited for him in the yard. I would if I'd had any sense."

Bitterly accusing himself for taking a chance on the passenger train, when he knew how strict were the rules, he began to run down the track. Soon he was breathing between parted lips. The cold air stung to the bottom of his lungs. He had to go on with his face bent, and that added to the constriction in his paining chest.

After a while he stopped and sank down on the track, his breath coming in great, long gasps. He thought for a moment that he was going under. He could feel his heart hammering. But he knew he must go on. He started forward again, staggering a little. When he thought he must go down again, he looked up. Before him he could just discern a building. He ran

toward it with a fresh access of energy. In a moment he could make it out. He recognized the station at Hammond.

Outside the door he paused a moment to gain his breath. Then he went inside as calmly as he could. The agent was working at his desk, with his back to Tommy. He did not look around.

"Can you tell me where the next section of that train that just passed is?" Tommy asked.

The agent turned in his chair. He was a thin, sallow man. He saw a red-faced, tired-looking boy leaning against the sill of the window which looked from the waiting-room to the inner office.

"What do you want to know for?" he asked.

"I got a message for Mr. Graham," Tommy answered. "It's a very important message. I guess he's on the next section. Can you find out if he is and where the train is now?"

"What kind of a message you got?" the agent asked. "We don't hand out information about trains to strangers."

"I'm flaggin' on the road," Tommy said. "Malloy is my name. Mr. Graham knows me."

The agent gave him a long, close scrutiny. Tommy feared that every minute he would hear the blast of Graham's whistle.

"Well, I'll find out," the agent said.

He edged over to the train wire and put his hand on the key. To Tommy it seemed a long time before he opened the key. He asked a question, got an answer, asked another, and got an answer to that.

"Graham's on the engine," he said. "That's the second section of 84. They 'll be along here in about fifteen minutes."

"You got orders for them?" Tommy asked.

"No, I ain't got orders for them," the agent snapped, and he prepared to go back to his seat.

"They won't stop here, then?" Tommy asked again.

The agent turned on him with a kind of snarl.

"Say, if you're flaggin' on this road, you ought to know a little about train-movements," he said. "Can't you see I've got the block set to let 'em in. Do you think freight-trains stop at every crossing in a storm like this? Now, don't bother me any more."

He sat down and turned a thin, stubborn back on Tommy. Tommy saw that further appeal was useless. He stepped back from the window and glanced despairingly about the room. He felt that it was useless to ask the agent to flag Graham.

As his eyes traveled the room they fell on a red lantern, hung beside the stove for use at night in emergencies. With his eyes on the agent's back, Tommy moved over to the stove, rubbing his hands and apparently absorbing the heat. The agent turned to his work again. In a moment he was writing steadily on his reports.

With the stealth which had stood him in good stead when he worked for Burns, Tommy slowly lifted his hand toward the lantern. His eyes did not leave the agent's back. His hand touched the lantern. He grasped its base firmly, lifted it from the nail, and drew it toward him.

Swiftly he transferred it from his left hand to his right. It was now hidden from the agent's view by the partition between the two rooms. Tommy stepped back from the stove.

"I'm much obliged to you," he said, and he moved toward the door.

The agent did not reply, nor did he look up. Tommy stepped outside. He did not dare to pass the window from which the agent could see him. He passed behind the station and came out on the other side.

Back of the building there was a string of box-cars on a siding. He climbed between two of these and put the string between him and the station. Then he ran in the direction from

which Graham's train was approaching.

When he came out on the main track, he stopped and listened. There was no sound save that of the storm. He bent and shielded the lantern with his overcoat. He found he had only half a dozen matches. Panic seized him. The wind was strong. If it blew out those matches he would fail to have a light to stop Graham.

He lighted one cautiously. The wind whipped it out. Four others met the same fate. He had one match. He looked about for a sheltered spot, but there was none. All about him was flat country.

He was afraid to return to the station. The agent might see him and besides he did not know how near Graham might be. If he was coming along, as the agent had reported, he was not far away.

He made a little tent with his overcoat and held the lantern up close to him. He had the globe back and the wick turned high. He struck the match. It crackled into a swift flame. He put the flame to the wick; the wick caught.

He dropped the match and with trembling fingers closed the globe. The light in the lantern flared up. He turned down the wick and the flame burned steadily. With a throb of joy he got to his feet.

Again beneath him came the vibration that betokened the approach of a train. Tommy stood in the middle of the track and began to wave his lantern slowly to and fro at his knees. The vibration increased to a jar. The shape of the locomotive came to him through the snow. He kept on waving his lantern. The engine seemed very close to him. Then the blast of its whistle shattered the air.

Tommy sprang from the track as the engine bore down upon him. He saw that the air had set the brakes. The wheels were grinding and sliding. He sped, tumbling and half falling, toward the front end of the train.

The train came to a stop. Tommy reached the panting engine. He ran to the step. Graham was standing there, peering down into the storm. He exclaimed when Tommy lifted his face to him. He gazed from the face to the lantern in the boy's hand.

"What 're you flagging me for?" Graham asked.

"I got some information for you," Tommy whispered breathlessly. "Shorty is going to put your engine on the bum."

"My engine?"

"Yes. Burns has paid Shorty more money to do the dirty work," Tommy answered. "I was at Burns's house and heard them.

For half a minute the engineer stood gazing down at the boy. What Tommy was telling seemed scarcely credible. At last he came out of his daze and put down a gloved hand.

"Come up here, Tommy," he said.

Tommy caught the hand and Graham drew him up into the gangway. Graham went back to his seat and began to work his air and open the throttle.

"I've got to keep wheeling them, Tommy," he said. "We're late now."

He put the train under way with some difficulty. The snow was piling upon the track and the train was heavy. Graham turned to the boy again. He studied him in silence a moment.

"Where in the world have you been, Tommy?" he asked. Where did you get that lantern?"

"I've been riding blind baggage," Tommy answered. "I swiped the lantern from the agent here. Will you listen to what I've got to tell?"

"Shoot along," said the engineer.

CHAPTER XI.

Behind the Water-Tank.

WHILE his engine panted through the storm, dragging its heavy train behind it, Graham listened to Tommy.

"All right," he said then, and he sat staring at the snow-covered pane in front of him. Tommy watched him intently. He could not tell from Graham's voice whether Graham was pleased with him or not.

Through Graham's mind many thoughts were rushing. He could take care of Tommy later for the courage which Tommy had showed. His present business was with Shorty and Burns. He had to go after that precious pair. When he got in he would take Tommy home with him. They would go over the problems together. Then Graham would strike and strike hard.

The nearness of a crossing brought him out of his reverie. He whistled for it, straightened up in his seat. The towerman let him by and the engine clanked over. He looked at the gage and wished he had not to stop at the water-tank. Stopping in this storm was no joke. Besides he could not get the thought of Shorty out of his mind. For the first time in his life he was in the shadow of a deadly menace.

They came within a quarter of a mile of the water-tank. Graham eased her off. Her speed slackened quickly. They crept up to the tank. The fireman climbed out to the tender to place the spout. Graham stepped down into the gangway. Tommy approached him and stood at his elbow.

Graham looked down at him. Tommy returned his glance with one of affection from his own clear, young eyes. Graham laid an arm across the boy's shoulders. They stood in that attitude while the engine took its long drink.

While they stood there, a shadowy, sinister form crept out from the water-tank. The snow was piling steadily down by now. It flurried and eddied in a gusty wind. The engine breathed hard.

Shorty crept up unseen to the side of the engine. The fireman was above the three and back to Shorty. He was busy with the spout and stood in a cloud of snow that almost obscured his vision.

At length the fireman shoved the spout aside and climbed back to the cab. He opened the firebox door and began to replenish his fire. Graham returned to his seat. Tommy sat across from him in the fireman's place. The storm swallowed Shorty.

The big drivers of the engine whirred and slipped on the snowy track. Graham fed out his sand liberally. The drivers took hold a little. The engine moved forward a few inches. The drivers took hold again. Graham gave her all he had, and she started heavily but surely.

Before them for a little way was a stretch of level track, and beyond that a down grade dropping through a cut with hills on either side. They panted over the level space and came to the head of the grade. The engine stuck her nose over that and, with what seemed a little sigh of relief, began to slip down.

One by one the cars followed her. As each car went it added a little momentum to the speed of the train. Shorty had chosen his spot well. His experience had taught him that the faster the train was going when that loosened side-rod let go the greater would be the peril of the man on the driver's seat.

The train was half-way down the grade. She had gathered speed rapidly as soon as the cab had struck the grade. Now she was hurling herself into the teeth of the storm in a wild abandon at being able to make good running-time.

Then the side-rod let go.

Graham heard the snap of it, and he felt a tremor run through his engine. Through his startled brain there went a flash of comprehension. Then his brain sickened and darkened for the briefest space. He knew what had happened.

His inaction lasted for only those few seconds. Before him, above the boiler, the side-rod was jerked up. It

had become a gleaming arm of death. He knew that it would begin to thrash, striking terrific blows as it was whirled about.

His hands shot out for throttle and air-valve, but before he could move a muscle further that gleaming arm came down against the top of the cab. Like a giant enraged it smashed the roof and struck the mechanism that controlled the engine.

Graham had fallen back. The rod began another revolution. Graham leaned forward to see if the levers were utterly ruined.

The second revolution of the rod was quicker than the first had been. As Graham bent the rod came through the cab roof again. The end of it grazed Graham's temple. Blood spurted and Graham fell back. He groped wildly for support for an instant, and then plunged to the floor and lay still.

The engine was running wild on a grade with her mechanism useless. She was a maddened creature, plunging through the elements to her doom, carrying her crew with her.

When the first crash had come, the fireman had turned from the firebox back into the engine. For a moment he was so amazed that he stood leaning on his scoop, staring at the hole in the cab. The next instant Graham came rolling down to his feet.

He stepped back aghast and then his courage flowed into his veins. He glanced at the gear and saw that it was wrecked. He did not think of Tommy. His only idea was to save his injured chief. He stooped and picked him up and started for the gangway.

"Don't jump. Don't jump yet!"

Tommy's voice stopped the fireman. He half turned about, holding Graham.

"You haven't time to do anything," he screamed above the noise of the whirling rod.

To Tommy had come what Shorty had said to Burns: "A man could crawl out to that and shut off the steam."

"I'm going to try for the valve," Tommy screamed back at the fireman. "If I can turn it, she'll stop."

"You'll be killed," the fireman objected. "You'll be shaken off this old rattle-trap."

"I'll try it for him," Tommy said. "You give me a minute. If I don't make it, then you can jump with him."

"You'll have to hustle," was the fireman's final word. "We'll be smashing into something first thing we know."

Tommy shoved back the window on the fireman's side. The fireman stood and watched him in a kind of fascination. Tommy let himself through the window. He had to gasp to get his breath. The storm blinded him. Just opposite him the rod was whipping round and round in a spasm of viciousness.

He had taken only a step when he slipped. He thought he was to be jarred to the ground. He flung out his hands. They struck against the side of the hot boiler. He felt them sear.

But he kept on, nerved by the thought that he was risking his life for Graham. At last the valve was at his side. He reached out. He had to hold on precariously with one hand now. He feared that at any minute he might be thrown to the spinning ground beneath him.

His fingers touched the valve and closed on it. As he turned it, he again almost lost his balance and again his hands touched the boiler. The pain sent a shiver through him.

His ears were filled with the whipping of the loose rod. He waited in desperation for its revolutions to become slower. For what seemed a long time they appeared to go on at the same speed. In reality it was but half a minute before they lost some of their force.

Then Tommy knew that the train would soon creep to a standstill. Unless there was a train ahead of them somewhere in the storm he had saved

Graham. The thought filled him with wild exultation. He had checkmated both Burns and Shorty.

The revolutions grew slower and slower. They were ten seconds apart and then twenty. Of her own momentum the train slid forward the length of a dozen cars. Then there was one dragging revolution and the thrashing-rod was still. The train jarred to a stop.

Tommy had not known he had closed his eyes. He opened them slowly. The snow was driving into his face, and the wind was whipping at his body. But all motion of the engine was gone. He began to tremble.

He lifted a foot to retrace his steps to the cab. He had a sudden rush of dizziness. He felt his hands relax their hold. He swayed a minute and slipped down the side of the engine to the cinders. He lay still, his white, frightened face upturned to the pelting snow.

CHAPTER XII.

Burns Pays.

WHEN he came to he was lying in the caboose. Rough bandages were on his hands. Beneath the bandages there was oil, which allayed the pain out of the hurts. He looked about him. Across from him Graham lay. Graham had been staring at him. Their eyes met. Tommy smiled into those eyes, his own joy-filled.

"You badly hurt?" Tommy asked.

"Bad enough," Graham whispered. "I got something of a cut, Tommy. How about you?"

For answer Tommy put a cautious foot to the floor, then the other. He sat on the edge of his rude couch and stood up. He had another dizzy minute and then his sight cleared. He felt weak, but he seemed not to be seriously hurt.

"I'm all right," he said. "Anything I can do for you, Mr. Graham?"

"You've done enough, old man," Graham answered weakly. "I'll never be able to get even with you as it stands. There's some one coming. They went for doctors."

The conductor came into the caboose, followed by a man carrying a small satchel. He glanced at Tommy.

"I guess you're all right," he said.

He turned to Graham. One of the crew had wound a towel about Graham's head. Blood had soaked through it till it was dyed. Graham's face had the pallor of death. There were blue circles beneath his eyes. His lips were shut now in a grim line.

The doctor took the bandage away. He uttered a little professional "Ah!"

"How bad is it, doctor?" Graham asked.

"Not dangerous, but painful," the doctor said. "I'll have to cleanse it now, so that there will be no infection. Will you take an anesthetic?"

"I think not," Graham said. "I can stand it. Before you go on, doctor, I want to talk to this boy alone for a minute."

"Very well," the doctor said. "But hurry."

He went out to the platform of the caboose, the conductor following him. Tommy bent over Graham.

"Son," he said, "this fight is yours and mine. You and I will land Shorty and Burns. I don't want any more fuss made about this thing than necessary. The success of this railroad means a great deal to me. If the public finds out that there are dissatisfied employees on it who are ready to commit murder, the public will give the road a wide berth. I'm down and out for a while. I can feel it. That was a fierce punch I got.

"When we get in they will take me home and I'll be laid up for a while. I want you to go to the chief of police, who is a friend of mine, and tell him you come from me. Tell him I want Shorty and Burns arrested by night, but that I don't want any more publicity given the incident than necessary. You'll do it, Tommy?"

Tommy nodded.

"Don't run any risk yourself," Graham added. "You've run enough already. As soon as anything develops come to my house and let me know. Call the doctor back."

The doctor returned and began to peck at Graham's wound. Graham promptly fainted. After the doctor had dressed the wound he lay in a half daze till the special train that was made up reached the terminal. Tommy waited till he was placed in an ambulance carriage. Then, as the vehicle turned away, Tommy hurried to his boarding-house.

Long ago Burns had given him an automatic pistol. He had kept it as a relic after he had quit the old life. He took it from his trunk and slipped it into his hip-pocket. Then he took the bandages from his hands. His hands were red and slightly swollen, but there was no abrasion of the skin. The skin had not blistered. Tommy worked his fingers carefully and then freely. He went back to the street.

It was now night. The snow had ceased, but there was still a whistling wind. It was decidedly colder. Tommy began to walk rapidly toward that short cut to Burns's home.

He came to the head of Burns's street presently. He stood there a minute, peering down it. Then he began dodging along the front of the rickety old buildings. He made no sound and the shadow cloaked him. He came to Burns's tenement. He looked up. There was no light in Burns's window.

Tommy took one step forward and then stopped suddenly. On the stairway of the Burns's tenement there had come a hasty footfall. It was the stumbling, uncertain footfall of a man in a great hurry. Tommy stepped back.

Shorty emerged from the doorway and started straight toward him. Tommy took his pistol from his pocket and held it in his left hand. Then he set himself, his right fist clenched. There was a little personal debt yet to be paid to Shorty.

Shorty reached Tommy. Tommy stepped out of the shadow. Shorty brought up abruptly. A nervous gasp broke from his lips.

"What do you want?" he asked.

"I want you," Tommy answered; "but before I take you—"

His clenched fist shot out and caught Shorty on the point of the jaw. Shorty staggered back. He recovered himself quickly and leaped forward. Tommy stepped back a pace. His revolver gleamed before Shorty's eyes. Shorty recoiled with an ugly oath.

"Up go your hands!" Tommy whispered. "I'd just as leave let a hole through you as not! Up!"

Slowly Shorty's hands rose above his head. His face was blanched and his lips trembled.

"What're you goin' to do, kid?" he whispered.

"Turn around," Tommy said.

Shorty turned slowly.

"March ahead," said Tommy.

Shorty started. Turn by turn, block by block, Tommy kept him going till they brought up before a police station.

With one hand Tommy turned the knob and opened the heavy door. He forced Shorty inside.

A moment later a white-faced man and a boy as white-faced in a sudden revulsion of feeling at being in a police station stood before the lieutenant's window. That officer looked up in surprise.

"What's happened?" he asked.

"I come from Mr. Graham," Tommy said. "I want a word with the chief of police."

"Chief's gone home," the lieutenant said. "Won't I do?"

"Mr. Graham said for me to see the chief, and I've got to see him," Tommy said.

The lieutenant took down his telephone receiver. In a moment he was talking to the chief. The chief said he would come to the office. The name of Graham seemed potent with him.

In half an hour an officer was leading Shorty to a cell. As the chief's

door closed on the pair Tommy turned to the big Irishman.

"There's something more, chief," he said. "There's a man named Burns—"

"Burns?" the chief cried. "Is he in on this?"

Tommy nodded. Then his eyes filled. He closed them to hide his tears. He felt the chief's big paw on his knee.

"You used to be Burns's kid, didn't you?" he asked.

Tommy's eyes flew wide. Was he at last to suffer for his past life? It was a bitter thought, coming at a time when the new life was beginning to be secure. He could only nod dully.

"Don't be scared," the big chief reassured him. "I know all about you, though I never saw you before. Mr. Graham told me. Oh, he didn't betray you, son. It was the on'y way to make you safe. We've had a drag-net out for Burns for a long time. We'd have got him eventually, and we might have got you in it, too, if Graham hadn't told us about your new start. Where is Burns?"

Tommy described Burns's retreat. The chief rose and draped his rotund form in a flowing coat. He shoved a big gun into the side pocket.

"Chief," said Tommy in the street, "you understand I wouldn't have snitched on Burns if he had let Mr. Graham alone, don't you? Burns was good to me once, and I hate to throw him down. But it seems as if I can't be square with him and square with Mr. Graham, too."

"You're doin' the on'y thing you can do for your own peace of mind, son," said the chief. "Quit worryin' about it. Burns was good to you because he wanted to use you. He's a crook. In his time he's killed his man."

Tommy plodded along beside the chief in silence. They came to the tenement. Tommy pointed out Burns's window.

"You stay here," the chief said. "I'll go in after the old fox."

He was gone for ten minutes; then he suddenly emerged from the doorway. Tommy saw in astonishment that he was alone.

"Nobody needs to worry about Burns any longer," the chief said when he reached Tommy's side. "The old fox has cashed in his checks. I knew he was havin' trouble with his heart, because he bought some dope at a drug-store we had spotted."

As Tommy walked along under cover of the darkness hot tears came to his eyes. They were tears of relief, for he was glad beyond words that it was not through him that Burns had been called to account. He was glad, too, in a dim way, that it was a higher court before which Burns would have to appear.

CHAPTER XIII.

Love and Laughter.

TOMMY waited in the lower hall for a summons from Graham. The word came down presently, and he went up the wide stairs. Graham, pallid but quiet, lay in bed. His wife sat beside him. She looked curiously at the boy. He gave her a straight, frank glance.

"Well, Tommy," Graham said.

Tommy told his story in a few words.

"Why did you go after Shorty yourself?" Graham asked. "Why didn't you go to the chief first?"

Tommy lifted his head. He seemed to look beyond the man on the bed. In the boy's eyes was something which even Graham, who had brought out what was best in his generous nature, had never seen there before. It was a something of mystic, abiding quality. It spoke of a final awakening to truth and justice, and it also spoke of peace —of the quieting of an unrest which might have led Tommy anywhere in the dark of the underworld.

"It was like this," the boy said in a low voice. "Shorty had licked

me. Through me in some kind of a way he tried to kill you. I thought it was up to me to get him. I wouldn't have been satisfied if I had just gone to the police for help.

"When I smashed him on the jaw I felt as if I was making things square between him and you. I kind of been thinkin' that that's the way the gang—the men, you know, includin' you—play the game. I wanted to do just exactly what any of the boys would have done. And I figured that's the way they would have done it."

"You wanted to fight your own battle, eh, Tommy?"

"Yes, sir; I guess that was it."

A low, soft chuckle came from the man on the bed. Mrs. Graham jumped up. She put her arm around Tommy and hugged him.

"Tommy," she said, "you're fine. You've learned faster than any one I ever saw. I want you to come here often."

After a while, Tommy did not know exactly how or when, he was out in the hall. A servant was taking him down-stairs. The servant left him at the front door.

He was just going through it in a dazed sort of way when he heard a step behind him. He turned about. Lily was coming down the hall. She was smiling.

"Hello, Mr. Hero," she said. "I have heard all about you."

Tommy gave her a quick scrutiny. It was true that she was smiling, but back of her gaiety there was something else—something very soft and feminine. And suddenly he realized that they were more man and woman just now than boy and girl.

"Where do you get that hero stuff?" he demanded.

"Oh," she answered, "you were a hero, Tommy. I mean it."

Her smile died away. Her eyes were shining and clear and her lips were tender. For the first time Tommy saw how moist and red they were. Tommy glanced up and down the hall. There was no one in sight. The big house was almost as much without sound as it had been the night he had entered it to blow the safe. Tommy advanced to the girl. She held her ground.

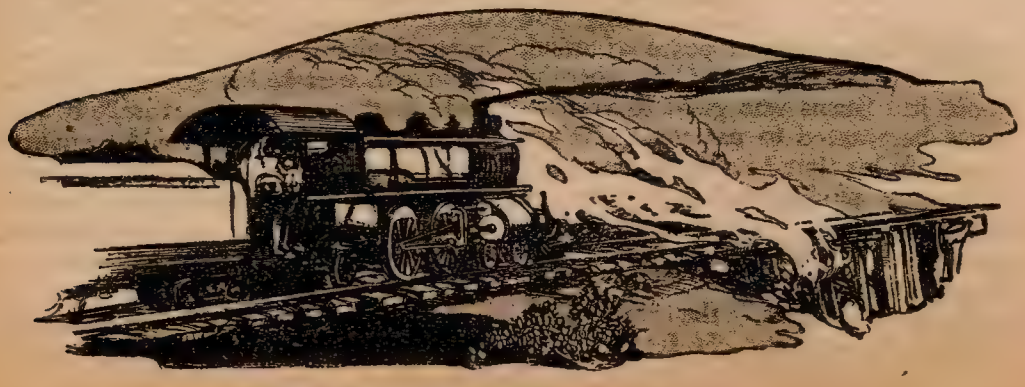
Tommy bent and kissed her on the lips. Then he stepped back and stood looking at her. Her own eyes wavered down.

"I guess I'm everything now that I claimed to be the time I met you before you knew I was a burglar," he said. "Do you believe me, Lily?"

Slowly she raised her eyes again. A faint smile came to her lips. To Tommy's own lips came the suggestion of a smile. The smile grew till it widened to a grin.

A moment later there came to the man on the bed up-stairs and the woman sitting beside him the sound of laughter—the uncontrolled, infectious laughter of youth, a laughter which spoke of the happiness which only youth can know.

(The end.)



FIRING WITH OIL IS NO CINCH.

Keeping a Grease Burner Popping at the Two-Dollar Mark Is No Less Work Than Shoveling Black Diamonds.

BY JOHN RICHARDS.

THE other day, in the course of my various wanderings over the face of this fair land of ours, I had occasion to climb into the cab of a large Pacific type passenger locomotive and brace the worthy brother fireman therein for a ride over the division.

It was not a very heavy train, judging from Western standards, but the engine was a coal-burner and the way that fireman labored was a shame.

From the time that the hogger opened up on the throttle until the time that he set the air in his home terminal, that fire-boy was on the continual jump.

Afterward, in the pie emporium across the street, he learned that I am employed on a road where oil was the fuel and, right there, that tallow wanted to know a mess of things.

Some of the fool questions that he asked me have made me think that the Eastern brothers that toil along on the coal runs know mighty little of the real dope concerning oil burners.

We of the oil burners admit that for the actual manual labor part of the game the coal-burner man surely has the worst of the deal, but we, too, have our little worries, and, after all is said and done, we haven't any very great edge on the diamond pushers.

Coal-burners leak, sometimes, but such a condition is the exception. Now, on the road on which I am employed, a leaky oil-burner is the rule and any time we can make a trip over the division without having much trouble on that account we pat ourselves on the back.

As a matter of fact, part of the regular equipment of the engines, both freight and passenger, is two sacks—not bags, but sacks—of fine sawdust to be applied through the injector as occasion demands.

I know of a few pastimes that are vastly more pleasing than standing out on the running-board of a freight engine making a few miles an hour and pouring a mixture of sawdust and hot water into the frost-cock of the injector while the hoghead sits on the fireman's seat and lets your steam drop back to a hundred and fifty pounds.

Once is enough for me on any particular trip, but when you have this same performance to go through some six or seven times before you are tied up under the sixteen-hour law or until, in spite of all your endeavors, the "old girl turns up her toes," it waxes monotonous, to say the least.

And that is what happens at least three trips out of five on the bad-water districts.

And the much talked about cleanliness of the oil burner! Excuse me! Allow me to remark that all this talk

of the candy fire-boy with the white shirt and collar on the oil-burner run is the silliest sort of piffle. I'll gamble three to one that for actual dirt and messiness the oil-burner has the coal-burner skinned both ways.

There is no dirt so hard to get rid of as crude oil, and you have yet to show me one oil-burner that hasn't developed so many leaks in the fuel-tank that one journey round the deck in the vicinity of the tender won't confer a liberal coat of thick, sticky, evil smelling crude oil on some part of your overalls.

I have yet to see anything on a coal burner that even comes anywhere near the nastiness of an oil-burner tank in its usual condition. Imagine, you who have never been through the experience, crawling up the front of the tank and into the narrow opening between cab and fuel tank. Then wading through a thick, sticky, slippery deposit of crude oil to the back of the tank to take water.

Then there's that lovely fairy tale of "no smoke and no cinders." The chap that coined that expression was in the same class and had Ananias lashed to the mast. Any time you show me an oil-burner that won't smoke under certain conditions I'll eat it.

Oil smoke is the sickliest stuff that ever gagged your throat or brought the bitter tears to your eyes. Of all the miserable times a man can fall heir to, riding a leaky oil-burner down a hill is the very worst.

The thick gassy smoke rolls back into the windows; the fire kicks billows of stifling gas into the cab. Fighting the engine to keep her alive, doping the boiler with sawdust and pouring sand through the flues whenever you can get her hot enough so that the hogger can open the throttle without lowering the steam to that point where the pressure drops so low that the pump stops and stalls the train, keeps the fire-boy in a state of mental and bodily activity that would shame his worthy brother of the black diamonds.

And cinders! Let me tell you that the ordinary cinder of the coal-burner has a whole lot to learn when it comes to being the real thing in the affliction line. Contrasted with the little grain of red hot sand from the oil burner, the coal cinder is nowhere in the race.

For a real, burdensome, nagging, annoyance, let me recommend to you a little innocent grain of sand that has been poured through the flues of any oil-burner, and finds its appointed place in the eye of some worthy tallow pot.

Ordinary methods, such as apply to the cinder under similar conditions, absolutely refuse to work, and there that sand stays until you can see a doctor. Better three cinders in the eye than one grain of sand.

Still, oil burning has its recompenses. It's pretty fine sometimes. When you get a good engine in decent shape life is sure one grand, sweet song. When the engineer horses the Johnson bar out on the pilot and heaves the throttle onto the back of the tank, and the old girl picks up her string of twelve or fourteen Pullmans and walks them off at forty per, you don't proceed to hump your back and fan your fire like an imp from the infernal regions.

Not you! You merely move your wrist a half inch or so on the firing-valve; open the atomizer another fraction of a turn; glance at the stack with a critical eye and then hunt a more comfortable position on the cushion.

Or else, with a sigh for the huge amount of labor imposed on you, you languidly crawl down on the deck and pour a few scoops of sand into the peep-hole in the door in a disinterested kind of way and then crawl back onto your seat.

Then, my brother of the pick and scoop, then is when the oil-burner man's thoughts turn to you, and, with a grin that is more than half of pity, he props his feet up on the boiler-head, lights his pipe, settles back on the cushions and watches the miles slide by.

Just like that.

Told by Our Readers

WE will pay promptly for railroad and telegraph stories for the RAILROAD MAN'S MAGAZINE — stories of danger and daring; of mystery, romance, and wonder in the big world of railroading. We want to publish these stories in "Told by Our Readers," and we want our readers to write them. Just sit down and tell the story as it happened—as if you were telling it to a smoking compartment full of good fellows and had them "all ears" to catch every word. Tell it as if you were telling it to your wife and children at home. We want just such stories — true ones, with names, dates, and places, and running from one thousand to two thousand words in length. But—we do *not* want stories of ghosts or hallucinations, or stories of gruesome wrecks. Read those published in this number and try to submit something better. Checks will be mailed on acceptance.—THE EDITOR.

TERROR WITH THE BARK PEELED.

A Train Crew's Adventure in a Makeshift Crummie with Two Cars Loaded with Newly Shaved Piling.

BY DENNIS H. STOVALL, Philomath, Washington.

NO. 345, regular freight, found itself short a caboose when it made up at Rosedale, the division point. A broken wheel put the incoming tail-ender out of commission, and the only thing available was a box car that had been remodeled into a sort of caboose. A lookout had been built onto its roof, and a narrow door placed in the end. As the crew was short on time, the pick-up tail-piece was hooked on, with the door forward, just behind two cars of long, newly peeled piling.

"I don't like the looks of them timbers," Kirkley said as he cocked a critical eye at the slippery logs, the extreme length of which made it necessary for two flat cars to support them.

"What's wrong with 'em?" Linwood, the rear brakeman wanted to know. "Won't those side braces hold?"

"There isn't anything wrong with the braces," the conductor answered. "But they ought to be chained. They're slippery as eels, and we've got a long grade ahead of us."

Neither Linwood, nor Duncan, the brakeman, who were not as old nor as wise by many years as Kirkley, could see anything wrong with the piling, and No. 345 pulled out of the yards with the make-shift caboose at its tail. The rear lights were hung out, because night falls quickly in the mountains, and in less than two minutes the freight struck the grade.

Kirkley had swung up near the middle of the train, and, later, made his way back over the cars of piling, muttering unpleasant things as he let himself down into the lookout.

"I don't like the looks of them greasy timbers," he again said as if the thing were troubling him.

"Forget it, Kirk!" Duncan advised. "Didn't your supper hit the right spot? Get a bad report from that Bluebird mining stock? Cheer up! It's only three months till Christmas!"

But Kirkley refused to be comforted. For some reason, best known to himself, he seemed to feel the dread of impending disaster—an obsession that sometimes

comes to veterans of the rail. At Granite Hill, the freight took the siding to let the Shasta Limited pass, and in fifteen minutes was on the main line again with a clear track as far as Summit, the highest point on the long grade.

When Kirkley joined the two brakemen in the caboose he seemed uglier and more troubled than ever. His black eyes, peering from under his greasy cap, had an evil look. He sat with his lantern between his feet, and stared into the gloom, not speaking a word. The younger men no longer tried to talk to him.

It certainly was a fit night for disaster. It was a thick blackness, made all the more dense and impenetrable by a chilling fog. The freight had now settled to a fifteen-mile gait, and the ominous silence was broken only by the heavy snorting of the "hog" far ahead.

Somewhere on the line a car had developed a flat wheel, and this kept up its regular *bump! bump! bump!* Nothing was visible outside save the ghostly forms of the somber firs that hovered over the track, and which stalked to the rear with invisible stride.

It was cold enough for a fire, but when Linwood went below to start one he found the coal hamper empty. He clambered aloft again, and the three men buttoned tight their coats and turned up their collars.

Then Kirkley sat up with a jerk. There was a strange fear in his eyes.

"What was that?" he asked hoarsely.

"I didn't hear anything," Linwood answered. "I'm afraid you've got 'em, Kirk."

"Listen! There it goes again! Hear it?" The old conductor reached over and clutched Linwood's arm in a fierce grip.

The three listened in silence, and Duncan asked:

"Do you mean that funny squeak? That ain't anything but this ancient tail-piece. It's sore in the joints—sort of rheumatic and out of kelter—"

Duncan got no farther. Just then came a terrific crash, closely followed by the crunch of breaking wood and splintered pine. The caboose trembled violently as if a mighty hand had come out of the dark and attempted to jerk it from the train. Yet it recovered and moved on, taking the steady pace of the train.

Kirkley jumped up and dropped below, the two brakemen closely following. All three had their lanterns on their arms. They found the floor strewn with wreckage. The butts of a dozen big timbers had crashed through the forward end of the car, and like hideous, menacing monsters, they were slipping toward the rear.

It was only a matter of a few minutes till they would travel the whole length of the caboose, the superstructure of which offered no more resistance than a cardboard box.

"We've got to stop the train and get out of this!" Kirkley yelled. He turned to Duncan and quickly ordered, "Break the air and flag her down!"

Duncan darted back to obey. But he came at once against the closed rear wall of the car. The one door of the makeshift was forward. This was tightly jammed with those giant timbers. There was no way to reach the air-line. There was no emergency brake. Nothing could be done but climb out from aloft. The brakeman clambered up, but as quickly dropped down again. There came another crash as the lookout was cleanly brushed from the deck.

"Some of the top timbers have slipped back over the car!" Duncan said in a voice filled with genuine terror. "We can't get out!"

For a little time it seemed as if their end had come. They were caught in the jaws of death, and they could feel the teeth of the monster closing upon them. Panic seized them. They dashed aimlessly back and forth.

Old Kirkley was the first to gain control of himself.

"Here, boys," he said calmly, "we must quit these antics and do something. It won't do to lose our heads!"

He spoke as a man who conquers fear with an iron will. The veteran railroader had faced death many times before. He had met it always unflinchingly and unafraid. Whatever the result, this, like similar tragedies of the line, would be a forgotten incident in railroad history before a year was gone.

The peeled timbers—veritable terrors with the bark off—kept slipping rearward, forcing the three men nearer the back wall. They had already smashed and broken the four little windows that set high on the sides. They crushed the stove to bits and reduced the conductor's desk to kindling.

There was a box-seat near the rear that served as a tool-hamper. Kirkley dived into this and brought out an ax. Then setting his lantern on the floor, began attacking the rear wall. The steel blade bit viciously into the soft pine, and in a moment a jagged hole was cut.

"Here, Linwood; you and Duncan get through and drop off. I'll follow. It's our only chance."

"Nope!" spoke Linwood. "Me last! Squeeze out—both of you, I'm going to break the air."

There was no time for polite argument. Though Kirkley preferred to be the last, Linwood stood firm and saw his companions disappear. Then he followed, hanging to the coupler till he could reach the dangling hose. The air broke with a hiss, and all along the line the brakes gripped the wheels.

At the same instant Linwood dropped off and the train dragged on to a halt. He had no sooner gained his feet than there came a final crash. The red lights disappeared as if swallowed by the black, misty night. Then the silence of the mountains.

Kirkley and Duncan came running up. With Linwood they soon found what was left of the caboose flattened out like a pancake beneath the two cars of piling.

MOTHER WORKED FOR 47 CENTS A DAY.

Father Also a German Railroad Employee, and Children Inherit Love for the Big Game.

BY MISS S. PRESCHER, Los Angeles, California.

GOING back to the year when the Breslau, Freiburg & Schweinitzer Railroad was built through the city of Custrin (Preusen), Germany, I wish to relate a story which my mother told me many times, and which I never tire of hearing.

Women in Germany work just as hard as the average man in this country, and in some instances, even harder; for the simple reason that they have been brought up that way from their childhood and are not afraid of work.

Blisters and caloused hands never worry them. People in this country would think it remarkably funny if women were employed as machinists, carpenters, masons, bricklayers, field-laborers, or even in the powder laboratories to make shot, shells, and other ammunition for the war.

But when it comes to making the embankments and laying ties for the railroad, and unloading gravel from the cars with such modern machinery as long-handled shovels, the women as well as the men are "johnny-on-the-spot."

At the age of sixteen my mother was an employee of the Breslau, Freiburg and Schweinitzer Railroad. And she was employed to do manual labor. My mother was only five feet three inches in height, and weighed one hundred and six pounds —a little girl of sixteen years.

On account of a large factory where flour, sugar, and sirup were being made of potatoes, it was very urgent that the railroad should be built through that section of the city. The factory was one of the largest business places in that section, and employed some two thousand men and women.

In the early spring the B., F. and S. R. R. was started. The first part—the foundation of the embankment—was built of what is called "*faschienen*," large bundles of green hemlock branches filled with rocks and bound with strong wire. This work caused many torn and bleeding hands.

A layer of *faschienen* was covered with gravel, crushed rock and earth; then came another layer of *faschienen* and another layer of gravel, and so on until the embankment was as high as necessary. The foundation was topped with a layer of earth before the ties were laid.

Along the sides of the embankment was earth on which alfalfa was very thickly sown, the thick roots of which helped to bind the earth and make it very hard and solid so that the melting snows, heavy rains, and the rising river of the early spring could do no damage by washing away the tracks. In fact, nothing short of an earthquake could stir an embankment like this.

When the rails were in place along came small trains of cars bringing more crushed rock, gravel, and earth to where the next supply was needed. An engine pushed the cars, and they were, uncoupled, allowed to run down the tracks by their own momentum; but there was always some one in the cars to apply the brakes to prevent them from running into the river.

These gravel cars were not like the American cars that are operated by a

crane that opens the bottom of the car so the full load of material can be speedily ejected. A few of the German cars opened at the side and the material was easily emptied; but most of them had to be unloaded by hand.

Six or eight women would unload one car of gravel in from twenty to twenty-five minutes.

The wages were very meager in comparison to those in this country. Women received two marks (forty-seven cents) a day. Men received two and a half marks a day.

This stretch of track from the factory to the freight depot, a distance of four miles, was completed about Christmas, and was ready for both freight and passenger business. The completion of the roadbed put quite a number of people out of employment. Among these were my mother and her brother; but my father, who was also employed on the construction work, was advanced to watchman, which position he held for six years.

In the days of this story there were no block-signals. Along the tracks were the little four or five-room brick houses where the watchmen and their families lived. These houses, a quarter of a mile apart, were the property of the railroad company, and were free to the watchmen and their families so long as they were in the employ of the company.

It was the duty of each watchman to walk back and forth from his house to the one at either side of him to see if everything was in good order and that there were no obstructions on the tracks that would endanger approaching trains. Double track or three or four-track system was used; never single track.

The German block-signal system was connected with a telegraph instrument. It was necessary that every watchman, engineer, fireman, brakeman, or conductor, as well as every telegraph operator, should have some knowledge of telegraphy.

Small houses, a short distance from the watchmen's dwellings, were the so-called signal-stations. In each little signal-station were a telegraph-table, a chair, a stove in winter, and a cot or bunk on which the watchman could recline whenever his work was slack.

The telegraph instrument is the same as it is here, but much larger; I should say that it is about the size of a wireless set.

On the wall was a large gong, some sixteen inches in diameter, which sounded very loud every time a train was coming. The message or train order came out on the key and sounder, the same as in America, and, at the same time, the gong on the wall would sound a certain number.

The watchman was supposed to know by the number of times the gong sounded what train was coming and from which direction it came. The gong sounded when the train was about a mile or a mile and a half away; then there was a moment's pause and the gong at the next little signal station sounded, and according to this the watchman knew how to set the semaphore or flag the train.

The telegraph operator or chief despatcher's station was at the main depot. He would sound the gong at the same time he received the train order. If anything happened on the road a long distance from the main depot and any one of the train crew could not get there quick enough to report, he would simply run into one of the little signal stations and telegraph the trouble.

The semaphore was not set by electricity and controlled by the operator, but the watchman had to set it himself with an iron handle similar to that of a pump. If a public street crossed the track between two watchmen's houses there were beams which closed it so that no teams, cattle, or pedestrians could cross until the train had passed. These beams closed the track at the same time the semaphore was set. They were worked in series with the semaphore.

The watchman was a married man. This was imperative. A married man could be relieved by his wife.

A thrilling incident occurred one evening. The wife of a watchman on the main line visited him, and entering the signal-station she found him gone. She was surprised and worried, as he was never out when she came at that time.

Suddenly the gong on the wall sounded. Not being quite familiar with the signals, the woman set the semaphore at "Stop!"

Then she waited for the coming train, fearing that she had made a mistake.

When the train arrived the engineer stopped, got down, entered the signal-station to learn the trouble. His was a through train and was not supposed to stop there.

The woman told him that she didn't know the meaning of the signal, and that her husband was gone and she didn't know where he was.

The engineer became angry, and as nothing was wrong he set the semaphore to "Proceed." He was about to resume his journey when some one from the train suddenly shouted:

"There is a man on the track!"

An investigation proved that the watchman had been overpowered and bound to the rails by train-robbers who attempted to hold-up and rob the train. The train-

robbers were caught, and the watchman's wife was handsomely rewarded for her brave mistake.

Thirty-nine years have passed since then, and, no doubt, a great many modern improvements have been introduced — especially in the building of railroad embankments. But to this day the women as well as the men still have to do their share in making a living for themselves and their families.

With such active experience my mother learned to love railroading in all its branches. Coming to this country in 1883, she was married to a locomotive-builder of Dunkirk, New York, who for twenty-eight years was employed at the Brooks Locomotive Works of the New York and Erie Railroad Company.

He took his young wife to Germany for three years. In 1886 they returned to this country and settled in Petoskey, Michigan. There they resided for twenty-seven years.

In that city my brother and I were born and grew up with a love and interest for the railroad inherited from our parents. Five years ago we came to Los Angeles, where my brother studied railroading and is now a conductor on the Southern Pacific Railroad. I have been studying telegraphy for the past eight months, and I hope to become an expert operator.

SAVED BY A DOUBLE 11-INCH AIR-PUMP.

Speedy Connection Prevents a Runaway Train from Passing Destruction's Semaphore When It Was Set at "Clear."

BY W. H. HENRY, Galveston, Texas.

WITH the retainers all up and the brakes grinding on the wheels, we came to a stop near the water-tank at Falls, and I set up a couple of hand-brakes to hold the train while the head brakeman cut off the engine to take water.

While he inspected the train to see if everything was in good shape, I coupled the engine on again, let off the binders, and we called in the flag.

About the time that worthy reached the caboose the operator ran out with a message which read as follows:

> Extra 1287 has lost control of their train and is running away and will reach Falls in about ten minutes. The only hope you have is to outrun them to Pines, as the north switch at Canyon Siding is torn up. I will instruct the operator at Pines to head you in and so get your train under control nearing that place. The crew on the 1287 is still with the train and I think they are going to try to stop on the flat at the head of Wild Horse Canyon.

Jones, my engineer, was a nervy man, but the ride we took to keep clear of the runaway chilled our pedal extremities. The old engine rolled and pitched, the coal-gate fell off, the coal shook down on the deck, and the tools and oil-cans jumped out of their holders.

Looking back I saw that the brakemen had given up trying to set any brakes. They were simply hanging on and waiting for the pile-up to take place when the cars would jump the track and roll down the cañon.

But we knew that our train was under control, as the big 1245 had been recently equipped with two eleven-inch pumps as a test, and she could handle larger trains more safely and at a greater speed than any of the other engines. Barring an accident, we figured that we could hold the pace.

As we shot around the point near the high bridge we looked back. From that place one could get a brief view of the track about three miles back—and we saw the wild train.

The train crew were crawling over the cars trying as a last desperate chance to set up some brake a little harder. We could see the smoke pour out of the 1287's stack every few moments as Wilson, the engineer, reversed her in an effort to bunch the slack and give the brakes a chance to take a new hold.

We rushed through Canyon Siding with

the speed of an express train. We did not dare to slacken speed as the runaway was gaining on us all the time.

"It will sure be a close shave for to get to Pines before the 1287 hits us," I said to Jones.

"Well, I think that I can widen out on the old girl as soon as we get through the tunnel. The track there is well ballasted," replied Jones, "and the curves are all elevated for high speed."

"As soon as we pass through the cut above Pines I will get out on top and wind up a few to steady you. When we reach the mile-board you can big-hole them, and we ought to be able to stop in the siding," I told him.

Jones called for brakes as we went through the cut, and I went out on top and assisted the shacks to tighten 'em up. As the mile-board whizzed by, the engineer raked the brake-valve around to the emergency position, and we rushed around the last curve and saw the operator out highballing us. He had the switch lined up.

As the siding was leved, we were able to stop before we fouled the south end. We had scarcely stopped when the 1287 shot around the curve. Trainmen and enginemen were on the steps ready to make a last desperate leap in case we were in the road.

There were two miles of easy grade south of Pines. As we approached this grade, Jones yelled at me:

"Cut me off! As soon as they get past, I will try to catch them before they hit the crooked track and heavy grade down Wild Horse, for no train can ever stay on the track there going as fast as they are."

The next instant the runaway dashed by with the white-faced men who knew that it was only a few minutes before they would turn over as they struck the first curve in Wild Horse Canyon.

My head brakeman was at the switch. As the caboose lunged by on the road to destruction, Jones pulled the throttle wide open. This made the old 1245 leap ahead like a greyhound.

We were making about thirty miles an hour when we went out of the switch. I thought that she would turn over the way she rolled on the frog.

We caught up with the caboose in about half a mile. I got out on the pilot and coupled up, then I took a long chance, and putting one foot on the brake-beam of the caboose, I braced myself and coupled the air-hose.

Jones cut in the air from his reservoir. Then he whistled two short and one long blast to signal Wilson on the 1287 to put his brake on lap, and to let him know that he would handle the air with the 1245.

The Westinghouse people would have shouted for joy at the way that double eleven-inch air-pump charged up that train line. It was done in about one minute. Half a mile from the bad curve at the top of Wild Horse, Jones set the brakes in the emergency while Wilson helped by sanding the rails.

The engineers reversed both engines and the speed was sufficiently reduced so that the 1287 stayed on the rails when she hit the curve.

About a mile and a quarter further we brought the train to a stop and the expected wreck was averted.

After it was all over and the members of the crew reached the ground after their terrible ride, their faces were pale and their legs rather shaky; but they soon recovered, as they were used to danger.

We proceeded slowly to the first siding, where we put the 1245 in the lead and handled the train down the mountain. After that we returned to Pines and brought our own train down without mishap.

FOR THREE OF YOUR FRIENDS

Send me the names and addresses of three of your friends who you think will be interested in the RAILROAD MAN'S MAGAZINE, and I will send them sample copies direct from this office. You might, if you wish to prepare them for the coming of the magazine, write to them as well and say that sample copies of the RAILROAD MAN'S MAGAZINE are being sent to them at your request.

This is just a suggestion. If it is too much trouble don't do it, but I will appreciate it if you do, and you will have the satisfaction of knowing that you have introduced your friends to a magazine they may appreciate as much as you do.

EDITOR, RAILROAD MAN'S MAGAZINE, 175 Fifth Avenue, New York.

Hiram's First "Sine."

BY CHARLES W. TYLER,

Author of "When 505 Went to Glory," "When 6 Passed Summit Spur," "When First No. 18 Ran Wild," "Keepin' a Fire in 'Flatfoot,'" etc.

Discarding Railroading, Hi Becomes "XS" in One of the Big Offices and Begins His Career as a Brass Pounder.

"Hiram's First 'Sine'" is a sequel to "Hiram's Last Run," which appeared in the RAILROAD MAN'S MAGAZINE *for April, 1914. In this very ambitious youth from Presque Isle, Mr. Tyler has a character who cannot fail to keep you in a state of good cheer. He's pretty human and he's full of energy, and by the time that he runs the gamut of the railroad game he may strike a job in which he will fit perfectly without any preliminary training.*—THE EDITOR.

AFTER I resigned from that railroad job I had I took up telegraphing. You don't have to have half so much interlect brakin' as yer do t' be a first-class operator. Bein' naturally bright, I caught on how to read them dots an' dashes right off. I'd read up all about how most of th' big guys had started as telegrafters, so I went up to Boston to get a position as manager.

There wa'n't no openin's th' day I got there, so I took a job in th' main operatin' room down at No. 109 State Street. Of course, I figured that it wouldn't take me no time to show 'em that they had a genius in their midst; an' then I guessed that ladder-climbin' would be eliminated an' that I'd go up on th' escalator.

I was kind o' took back when I got inside th' door of th' Western Union's telegraphin' place; it was that big. Y'sir, it was bigger'n th' Odd Fellows' Hall, down in Presque Isle.

An' noise! Say, you ain't got no idea what a hubbub there was in that joint. It sounded like th' rivetin'-shed of a boiler factory. Telegraph instruments was chatterin' in every direction, an' most of 'em to th' accompaniment of a old' typewriter.

Over back of a big switchboard that run th' whole length of th' room I could hear a lot of machines buzzin' away while they churned out lightnin'.

Right in th' center of th' commotion was a big desklike thing that had a dozen or so brass tubes comin' down to it; an' they was addin' to th' din by spittin' out a lot of leather thing-um-bobs which punctuated their arrival with frequent plunk-plunk-plunks!

Down where I got on to th' knack of telegraphin' there's a couple of instruments at a desk in Lon Bailey's coal office; an' sometimes I guess th' reg'lar operator used to do ten or 'leven messages a day. But in this State Street place they must do two or three hundred.

I sort o' sized up th' situation while I was standin' there twiddlin' my hat an' wonderin' what I'd better do. They seemed to have plenty o' operators, so I figured perhaps it 'd do just as well if I come around in th' mornin' after th' racket had quieted down a bit.

I begun backin' toward th' door, so's not to cause any undue attention, but I didn't start backin' soon enough. Just as I was a goin' to turn around a little, tubby-lookin' floor-walker guy wheezed up, real businesslike, an' addressed me.

"Operator?" he inquired, short an' sharp.

Bein' took unawares, I answered, cautiouslike: "Yes-s-s; kinder."

"Well," he jerks out, sudden an' crisp, "what were yer goin' out for then? You come with me; we need yer."

He started off toward th' center of th' powwow, with me trailin' along behind. At a long table where a lot of other operators was sittin' he pulled up an' nodded at an empty place between two of 'em; an' I sat down.

"You sine XS for now," he informed me. "Keep that wire cleaned up an' watch yer numbers."

Then he beat it. Before I got a good, long breath th' sounder, tucked up there in its little wooden box, begun cluckin' away like a ol' hen with a brood of chicks. I inclined my head an' listened respectful, although I couldn't get a thing it was sayin' t' save me. There didn't seem to be no place to start readin', it come that streaky.

After it had been thumpin', animated, f'r quite a spell th' guy who was sittin' at my right an' peckin' away at th' keyboard of a rickety appearin' ol' mill with th' forefinger of his two hands leaned over toward me an', without stoppin' his peckin', he says to me, real agreeablelike: "That's your call, sonny."

"Oh, is it?" says I, elevatin' one eyebrow an' tryin' to appear surprised.

"Yep," he comes back good-natured an' still keepin' his ol' mill jerkin' along. "B's th' main-office call here. That's Concord callin'."

He yanked a message out of his typewriter, chucks it up in th' wire basket, turns up a new blank, an', puttin' a new one in lappin' th' precedin' one, goes right on peckin' without battin' an eye.

There's got to be some dashes in Morse or yer can't read it; that's all there is to it. Now, I'll bet a dollar that that guy in Concord didn't know how to make a dash. But, take it from me, he could make th' niftiest dots you ever listened to. He just sort o' nursed 'em along an' chucked 'em at you in bunches. It sounded like th' wire had got crossed with a runaway mowin' machine.

"Bk—bk," I pounded at th' Concord chap for th' third time between th' number an' th' check. Leavin' my key open I swarbed th' sweat off my face before resumin'.

"Go ahead, number," I clicked at him after a minute, an' as patient as I could. Then I closed my key, made a stab at th' ink-well, an' got already to foller right up close to his sendin'.

The first thing that I got was, "Hr." Then there was a kind o' sudden spurt, an' th' next thing I translated was, "N H, 28—to."

I didn't lose no time grabbin' for that key. "Bk," I clicked at him again; "go ahead, number." Say, but he was an awful rotten sender; nowhere near so good as some they got down Aroostook way.

Again I stuck my ear close to th' sounder an' listened; but th' first thing I could catch was another "to."

I was sweatin' some when I opened th' key th' fifth time. I was also gettin' desperate, so I just told him to "Ga ck." ("Go ahead, check.") There was a mighty eloquent pause followed that; but after a minute th' ol' sounder started playin' ragtime again.

I listened mighty hard for that check, but I didn't get a thing that sounded like "pd" or "coll." Those

two was what I was most familiar with. I hadn't ever had much experience with "N P R's" and "D P R's." After two more breaks I got a awful jolt when I finally translated, "300 N P R."

"Sufferin' cats!" says I to m'self. "Hi you gotta show some class here, all right."

When I got the "(To) Boston *Record*, Boston, Mass.," written down I'd made a mighty munificent beginnin'. I had a couple of sines, a check or so, an' accompanyin' blots an' blotches on one blank, while on another I had the "from," an' on still a third the "to."

When I got th' period an' started on th' body, I discarded th' pen and ink as bein' too mussy an' grabbed a pencil. And instead of gettin' a press sheet an' makin' tissue manifolds, which is generally considered good form when you're copyin' that newspaper stuff, I kept right on usin' th' small receivin' blanks.

The first time I broke in th' body I asked th' guy if he wouldn't "pls" choke 'er down a couple of notches so a feller could get th' stuff.

I guess that he couldn't read very good, either; because, instead of slowin' any, he widened on her like he was makin' a meet on short time; but I managed to trail along somehow, gettin' a little better than half of it an' guessin' at th' rest of it. I didn't figure it would be considered good etiquette to break mor'n about once every ten words or so.

After copyin' about fifty words—meanin' that, probably, about a hundred an' twenty-five had been sent—which I'd got spread out over some nine or ten blanks, I woke up to th' fact that th' tubby person was gazin' over my shoulder. I opened my key so as I could give him my undivided attention.

"Long one, aint' it?" I asked him, indicatin' what I'd done.

He didn't say nuthin' for a minute; just kind o' stared, surprised like, at my assortment of handwritin' specimens. Then, takin' a deep breath, he waxed eloquent.

Take it from me, ol'-timer, that guy was some waxer. He was a reg'lar human vocabulary of an unabridged edition of blue-trimmed profanity, which he aimed in my general direction. Although he seemed wound up for quite a spell, there was a lull after a bit, and in about five minutes he run down, an' he never repeated himself once.

It must have taken him years to get that collection; it even had suthin' on that railroad bunch I worked with once. I come pretty near gettin' mad at him; an' I would have got mad, too, if I'd been a little nearer th' door.

Well, after things had quieted so that we could understand each other's motions, I was given to understand that I was goin' to get "lifted" an' transferred onto th' city lines. After th' tubby guy had got his breath he escorted me across th' room an' unloaded me onto another guy. I guess you'd call it unloaded.

The other guy was a nice, gentle-lookin' ol' chap with gray hair.

"Here's a' operator for yer," th' fat feller informed him. Moppin' his face an' eyin' me kind o' sorrowful an' disappointed like, he added: "I don't need him no more; so thought you might be able to work him in somewhere."

"Sure—sure," replied th' gentle-lookin' guy kind o' nervous an' fidgety like, "I do—I do; I ain't got half operators enough."

Then th' fat chap backed toward th' other part of th' room, lookin' like he'd got a big load off his mind.

"What's your name, m'boy?" inquired th' chap with gray hair as he sized me up over th' top of his glasses.

"Hiram," I told him—"Hi f'r short."

"Have you got a mill, Hiram?" he asked me.

"Nope," says I; "I ain't ever copied with a typewriter."

"Well, well," says he, real pleasant,

"you want t' get on ter copyin' with a mill right off. I'll get you one, an' you can start right in. You're goin' t' work with th' BY office; th' sendin' will be slow, so you'll make it go all right, I guess."

I had some doubts myself, but I didn't say nuthin'. Typewritin' hadn't ever been in my line. Th' nearest I'd ever come t' runnin' anything like a mill was a mowing machine.

Pretty soon my new boss come back, luggin' a ol' typewriter that looked like it had been ornamentin' a junk-pile somewhere.

He planked it down in th' little socket-place in th' table; then he said: "There, m'boy—you sit right down an' make yerself t' home." An', givin' me a nice friendly pat, he hurried off.

The first thing I did was to get acquainted with that ol' typewriter; but before I'd found out what th' thing marked "shift key" was for, th' sounder started workin'. I postponed my examination of Henry Mill's invention an' turned my attention to what one of Mr. Morse's pet machines was sayin'.

It was my call, all right, an' nice, clear sendin'; slow, too. I answered, an' th' sender started. Say, bo, it was great stuff; just th' kind they had down in Presque Isle. I could read it as plain as day:

"(H-r n-o) 8-4 b-y n-x—1-o p-a-i-d—"

I got so interested listenin' that I forgot to start copyin'. The sender got way down in th' "from" before I came to. I had to break an' tell him to go ahead number. It was a nice, accommodatin' chap on th' other end. He didn't let off no sarcastic stuff like th' Concord guy, but just started all over again an' never said a word.

It wa'n't with th' sendin' that I had trouble when I started tryin' to copy, but with that confounded ol' typewriter. It must have been internally injured, judgin' from th' onery way it acted.

The first key I hit created a awful disturbance somewhere inside; there was several minor clickin's an' scrapin's, an' then, all of a sudden, th' carriage give a hop that would have carried it half-way across th' room if there hadn't been a bumper post on th' main line.

The second key I hit didn't make so much impression; in fact, it didn't seem to have no effect at all on th' general southerly trend of th' contraption's movements. It wa'n't until after I prodded at every lever I could see or feel that it would go at all.

It kind o' run on a sort o' local schedule when it felt inclined t' write anything. Other times it would skip, stutter, buck violent, an' then: "*ting-a-ling—biff—thud!*" an' that was th' end of th' line. Occasionally I'd have a couple words spelled out, an' then again I wouldn't. From hog to crummie, that ol' typewriter was full of cussedness. But, havin' always been handy around machinery, I made it go somehow.

I was gettin' on fair, an' about half way through th' body, when some one reached over my shoulder an' opened my key with a sort of violent push. I looked up, an' was some surprised to find it was th' gentle-lookin' ol' chap with th' glasses. He seemed to be all worked up about suthin'.

"What are you a doin'?" he yelled at me.

Bein' disturbed in that unpremeditated manner made me kind o' peeved; an', bein' of a high-strung disposition, I yelled right back at him:

"Can't yer see what I'm doin'?"

"What be you copyin' that message on?" he wanted to know.

Whadayuh know? Me bein' so worked up an' busy studyin' out th' letters while maneuverin' that ol' mill, I'd plum forgot to put a telegraph-blank in th' typewriter. Pretty near fifteen minutes of strenuous receivin' had all been wasted.

"Gee!" says I, shootin' a foolish grin at th' ol' chap, "that's one on me, ain't it?"

Anyway, me an' th' poor guy sendin' had to start all over again. And after a couple of distressin' conversations, an' some twenty minutes or thereabouts, I had a message that looked something like this:

8 4 bbby n xsx 10p
aid bostonmass 2 8
mr jo hn s m ith i43w 4thst
neworyk n y
will be ohme on hte ten thr
ity train t on igth mary 830p m

It wa'n't exactly a classy-lookin' message; but what's th' difference, it was most all there — all but th' word that come after "will" in th' body. By readin' it over, most anybody could tell that the missin' word was probably "not," so I wrote it in with a pencil, give th' guy an' O. K. and chucked th' message up in th' basket.

Feelin' that I was deservin' of a rest after that attempt, I leaned back in my chair t' kind o' meditate; but right off I saw th' boss comin', so I sat up an' pretended to be fixin' th' typewriter.

"What are you a doin' now?" he demanded when he come along.

Not bein' doin' much of anythin', I just told him what I had done; so I said:

"Why, I just got a message from th' BY office."

"Did yer get it all right? What'd yer do with it?" he fired at me so sudden that it rattled me.

"Y'sir—I guess so—in th' basket," I replied, gettin' nervous an' havin' an idea he wouldn't think much of my style if he ever laid eyes on th' artistic job I'd done. At th' same time I was hopin' mighty hard that it had got lost in th' shuffle, or that he would pass it up; but he didn't.

"Guess! Guess!" he hollered, gettin' red in th' face. "Guess what? Guess what? Whadayer guess?" An' without waitin' for me to give him any explanation he pikes off on th' trail of that message.

I kind o' got a hunch that he would be awful peeved when he laid his lamps on relay message No. 84 from th' BY office; an' I wa'n't far off, either.

Pretty soon I saw him comin' back. He was away across th' room; but from that distance I could see that he was makin' an awful disturbance, so I took it for granted that he had found that shinin' example of my telegraphin' ability.

He begun yellin' before he got anywhere near me, an' so loud that he had th' whole kit an' boodle of brass-pounders lookin' an' grinnin'.

"Whadayer call that? Whadayer mean by sendin' that thing out? Wha'd yer let it go out like that for? Don't yer know better 'n that? 'Smatter with yer?" he yelled at me, pretty near as loud's he could.

Wavin' that message over his nut, spillin' cuss words f'r punctuation, an' actin' gen'ally agitated, he come tearin' down th' line like a high-ball freight passin' Lonesomehurst. His glasses slid down onto th' end of his nose an' his bristly gray hair was standin' right up on end. He made th' last corner with th' throttle wide open an' headed for me with a white feather an' a red stack.

"Lookathat! Lookathat!" he howled. "Whadayer mean? Are yer crazy! Must be! Must be! Crazy's a loon! Crazy's a loon t' let a message go out in that shape! 'Smatter with yer?"

Say, that ol' nut was a reg'lar hair-trigger, automatic, double-action hunk o' firecracker humanity. He got all worked up over a little of nuthin'.

"Aw, g'wan!" says I. "What's bitin' yer?"

He said that there wa'n't nuthin' a bitin' him; then we started arguin'. Well, we discussed th' matter pro an' con for some little time; an' after we'd wore out all th' words an' phrases allowed in civilized disagreements it become a question of who could holler th' loudest.

We entertained a large an' appreciative audience for some little time

before it was decided that I'd have to copy that message all over again — which I did under protest a little short of violence.

After I'd got it all straightened out it read, "I will" instead of "will not." Then th' sendin' guy said that he had another message for me. I told him to go ahead, an' he started sendin'.

It was a sort o' queer mess, th' last telegram that guy sent me. It said something about, "Cable, London," an' had four or five jumbled-up words that didn't have no meanin' that I could see.

When I got it done th' other feller asked me to "repeat back." I couldn't see what he was drivin' at, unless he was tryin' to kid me, an' I told him so. I was kind o' sore at him, anyhow, because he wouldn't tell me whether th' check was paid or collect.

Just then he must have found some of that cable message he'd forgot to send, because he said: "Put this down."

I put th' telegram back in th' typewriter an' told him to go ahead; then he sent: "Gth u bonehead ham!"

I took th' blank out an' looked at it; but it didn't look no worse than th' rest, so I give him an' O. K. I'd heard of them code messages, although that was th' first one I'd ever had telegrafted to me.

About then th' ol' gray-haired feller come pikin' along.

"Wha's that?" says he, pullin' up alongside o' me an' grabbin' that cable message right out o' my hand.

"'Nother telegram I j'st copied," I told him.

He looked at it through his glasses f'r a minute, an' then he kind o' stiffened up an' looked at me *over* th' tops of 'em. Another guy looked at me like that once, an' before I could duck he hit me a wallop in th' eye; this time I sort o' ducked mechanical like, an' th' ol' stiff only hit th' box that's got th' sounder in it. He busted that. I got up before he had a chance to get me comin' back.

"Look a here," I asked him, "what th' Sam Hill's th' matter with yer? Did yer mean that f'r me?"

He said that he did, an' added that he'd got a good mind to knock my ding-busted nut off.

That's mor'n anybody can say to me an' not have t' fight. I wouldn't stayed an' been manager of their ol' telegraph company after that kind o' treatment if they'd give me twenty dollars a week. I hadn't been so mad since th' time I messed up th' caboose when I worked on th' railroad.

I hauled off an' started a wallop right at th' ol' guy's ear. He ducked an' I kind o' slipped, an' in spinnin' around hit another feller who'd just come up right in th' stomach. He grunted an' backed over th' chair I'd been sittin' in. An' while I was lookin' at him th' gray-haired feller slammed me a side th' bean.

Just then th' little tubby feller come runnin' up.

"Hey, you crazy fool," he hollered at me, "that's th' chief yer j'st hit!"

I side-stepped, an', wild bobcats! I hadn't no more'n got in th' clear when th' two clouts th' ol' guy an' th' fat gink had aimed at me whizzed by my nose. Them two fellers come together like two trains tryin' t' pass each other on th' same track.

I was bein' kept all-fired busy right then. When I turned around th' gazabo who was chief was executin' a sort of flank movement. He was makin' f'r me with both his arms swingin' suthin' reckless an' some warlike.

I ducked a punch he made f'r my nigh lamp, an' backin' out of reach, I asked him if he was th' train-master of that division. He said he was.

"Well, then," I yells at him, "you're th' guy who's got to accept this." An' I slammed another wallop at his belt.

"Ugh!" he grunted as he grabbed f'r his stomach like it was a lost brother.

"What d'yer think yer doin'?" he asked me as his wind begun t' come back.

"Handin' in my resignation," I hollered at him as I made a jump f'r th' door before th' reenforcements that was gatherin' had a chance t' cut off my retreat.

Aw, who'd want t' be a telegrafter, anyhow?

No, I didn't take no escalator in that line of work; but I went down four flights of stairs, with a murderous mob a trailin' me, a good deal quicker'n it was ever done before.

"XS," says I t' m'self, as I headed up State Street toward no place in particular—"XS, ol' scout, your intentions may be all right, but ol' Schoolmarm Experience has got t' take a balance an' eliminate some of th' static from yer judgment before they'll set you up on th' big circuit."

TALES OF THE LEFT-HAND SIDE.

The Experiences and Observations of a Tallow-Pot During Years of Service on Various Roads.

BY OWEN HUGH O'NEIL.

When Douglas Died.

I DO not believe in that interpretation of the "unwritten law" which requires a man to "stay when his engine goes down," under any and all circumstances. Rigidly followed, it could easily result in the survival of the unfittest; yet there are occasions when a man must stay, because his after-life would be unbearable if he did not; and such an occasion came to Douglas.

He was a young man, about thirty-five, but reckoned as one of the very best engineers on the division. Never neglecting anything, never making a mistake, never taking chances—safe and sure and steady—that was Douglas.

He was running a freight-train between the towns of L. and S., in the State of Washington. Going west, there was a heavy downward incline for several miles. It was a dangerous grade, and every one—Douglas, perhaps, more than all the others—took particular precaution to prevent an accident.

Douglas, one night, was pulling a fifty-car train of wheat. At a siding just east of the Cascade Tunnel they stopped to pick up a car, and also for lunch at the little all-night restaurant. The car was placed next to the engine. When Douglas came from the restaurant he either forgot or neglected to test the air.

As the train swept down through the tunnel, Douglas made an application, but there was no response. Whistling for brakes, he turned to the fireman.

"We've got no air," he said grimly. "Better jump, while there's time."

There were many reasons why the fireman desired a continuance of life—among them was the little motherless lad at home. But he shook his head at the engineer's suggestion, and, clinging tightly to the hand-holds, crawled out upon the lurching cars and did his utmost in the attempt to bring the train into control.

It was useless, as, indeed, he must have known from the first. The fumes from the gases in the tunnel were so overpowering that he was almost overcome. He could do nothing, and when they emerged from the tunnel, where the incline grew gradually less steep, the speed attained by the runaway was so great that action was too late.

The hand-brakes were not sufficient to cope with the heavily loaded train as it rolled madly down the mountain. The conductor, in the caboose, was as helpless as Douglas, for at that time there was neither air-valve nor gage in the cabooses; and, besides, there were several "non-air" freight cars coupled to the caboose.

The fireman, realizing the uselessness of his exertions, made his way back to the engine.

"I'm going to jump now!" he said. "Come, Douglas. We've done our best—it's no use!"

But Douglas shook his head. "My first mistake!" he shouted to the fireman. "And—my last!"

The fireman urged, but Douglas was obdurate.

"My fault," he said. "Those boys back there," and he glanced over his shoulder—"I can't do anything for them; but I can stay! It's the only way I can make atonement! Good-by, lad. Go, before it's too late."

And the fireman jumped.

People told how, as the train dashed through the little town west of the tunnel, in the gray dawn, its wheels a blaze of fire, Douglas stood erect in the cab and waved his cap in a hero's last farewell.

A little farther the train dashed madly, then plunged almost two hundred feet into the cañon below. Not a car—not a truck—was left on the track. It is said that when the president of the road came by in his private car the next morning he wept as he gazed upon the sight.

The fireman and the conductor, who also escaped miraculously with his life, but never recovered from his injuries, were the only ones who survived to tell the story of how Douglas died.

"Now I Lay Me Down to Sleep."

IF he thought it was time to say his prayers why didn't he stay in the cab and say 'em?

Bless me if I know! And I doubt whether he does. I suppose he reckoned that it didn't make much difference, because his time had come to cash in his checks and square the game; but he lived—to be laughed at.

He was a good fireman; and he's a good engineer, now. But at that time he was newly promoted and didn't know the ropes as well as he might.

He was pulling a heavy freight-train down Cajon Hill, and he had been using the air pretty freely in the first part of the descent; now, when he was half-way down, or more, and the train was dropping at a pretty good clip, he reached for the valve again. And then he screeched.

"We've got no air!" he yelled, and made a streak out through the cab. The fireman thought he intended to jump. Instead, he climbed over the tender and onto a box car, and laid himself face down on the running-board.

The tallow was a little bit cooler than Mr. Newly Promoted. Instead of jumping, he took the engineer's place on the right-hand side. The train was going at a pretty rapid rate of speed by that time; but she held to the rails, while the fireman waited. Presently he found that the train-line was recharged, so the level-headed tallow made a full application and brought the near-runaway into perfect and easy control.

But the frightened little eagle-eye still clung to the running-board of the box car. When the fireman went back to him he was saying, "Now I lay me down to sleep! Now I lay me down to sleep!" probably because it was the only appropriate thing he could think of just then.

"Get up!" said the tallow. "It's all right! Nothing the matter—nothing at all!"

He sat up and looked around nervously. Then he climbed down over the tender and back into the cab.

And, as I said a minute ago, he's a perfectly good engineer now—as good as the best of them.

The Girl at the End of Line.

WE called that thirty-mile stretch of track between Everett and Seattle the "straight and narrow," because it wasn't. I don't suppose there were more than a few hundred yards of really straight track on the whole run.

I was firing the work-train out of Everett for Engineer Tommy. Our engine developed a case of leaky flues, one evening, and we were ordered to run light—just the engine and caboose—to Seattle, where the engine would be repaired.

Most engineers don't like to handle a leaky engine, but Tommy almost danced with delight when he received those orders.

"Now, listen!" he said to me. "I guess you know I'm interested in a little girl over there at the end of the line; well, it's eight o'clock now, and we can get to Seattle by nine, and I can eat and shave and dress by ten, and in half an hour I can be up at Mabel's house, see? We've got clear track all the way. There isn't a thing on the rails except No. 9, local freight, and she ought to be pretty close to Seattle herself by now. So don't be afraid to slam the coal into this old chunk of scrap!"

It is never safe to assume that there is nobody on the rails but yourself—even on the plains; and on a piece of track patterned after a corkscrew it is doubly dangerous.

If Tommy wanted to call on Mabel that evening, I had no objection; but I didn't feel like risking my life just to accommodate him. I didn't have any girl at the

end of the line myself, so I wasn't in a hurry.

It wasn't long before the engine began pitching and rolling so heavily that I could hardly keep my footing on the deck. Tommy certainly intended to get to Seattle on time that night; but I didn't like his schedule, so I just changed it and substituted one of my own.

Oh, yes, I kept on shoveling the coal into that hungry maw, all right—but not according to regulations. I took particular pains not to throw any coal up against the flue-sheet, and it wasn't long till the steam-gage needle dropped down to sixty pounds.

"Ginger up there!" called Tommy.

I shook my head wofully. "It's no use, old chap! The flues are leaking!"

So they were, but Tommy didn't know why.

He fussed and fumed and fidgeted, but, at length, he had to shut off the steam, put on the blower, and let the engine drift.

We crawled slowly in and out along that twisted track, Tommy saying hateful things to himself and the engine all the while. Suddenly he uttered a low whistle, and I looked ahead. As our engine pointed her nose around a curve we saw the red caboose-lights of another train flitting around another curve just a short distance ahead.

"For the love of whiskers!" said Tommy. "No. 9! It's lucky we didn't have any steam or we'd have plowed right into 'em!"

It was No. 9, moving—just barely moving, and no more. She was almost stalled for lack of steam, and they hadn't set out any torpedoes because they thought that *they* were the only train on the line. We coupled onto them, and together we crawled into Seattle at eleven o'clock that night.

Of course it was a pity that Tommy was cheated out of an evening in the delightful company of the girl at the end of the line. Personally, I wasn't a bit sorry that I'd "put one over" on my engineer by practising unscientific firing.

Battling with the Right-of-Way.

EVERYBODY in train or engine service has to face a good many dangers, common and uncommon, but it isn't often that an engineer and fireman must literally do battle with the right-of-way, as did an engine crew in California.

A rail broke, as rails have an unpleasant habit of doing, now and then. A broken end of that rail became caught in the engine that was passing over it, and, as the engine moved, the rail was drawn up and up until it penetrated the floor of the cab.

In coming through the cab, the rail broke a steam-pipe. The engineer, besides having a leg broken, inhaled steam before he could make his escape.

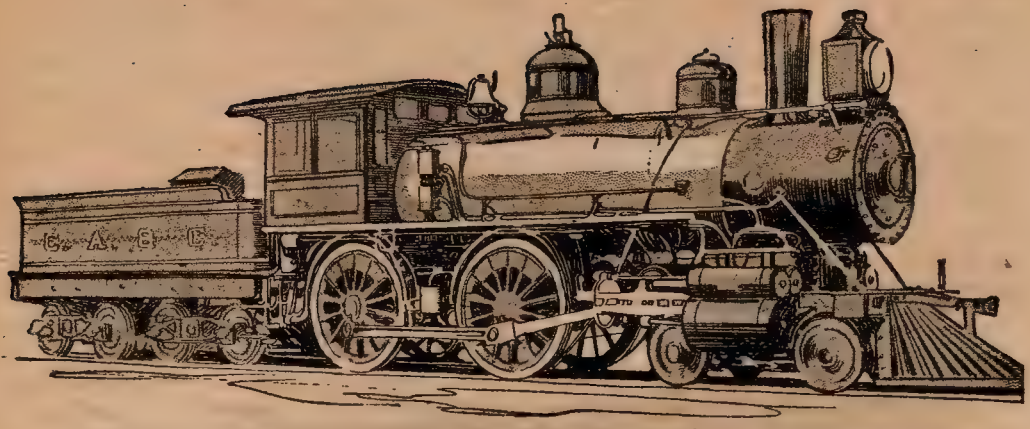
The fireman, unable to imagine what particular kind of demon was loose in the cab and running things to suit himself, leaped straight through the window. He was a big man, weighing nearly two hundred and fifty pounds, and was severely injured in jumping. Both he and the engineer were confined in the hospital for some time, the fireman in particular suffering severely from nervous shock.

For a long time afterward he declared that he was afraid of everything on wheels, but eventually he overcame his nervousness and returned to his position.

"Lightning never strikes twice in the same place," he says, "and it's not more than once in a lifetime that the right-of-way jumps up and gives us a black eye."

B. AND O. WORK ATTRACTS JAPANESE.

IN order that he may study the methods of American railroad construction, Kenechi Nakamura, chief civil-engineer of maintenance of the Japanese Imperial Railways, has been granted permission by the Baltimore and Ohio Railroad to work on its large double-track bridge now being built across the Monongahela River at Glenwood, Pittsburgh. The Japanese railway official is now on the work, and although his duties have not been specifically defined, he is assisting the Baltimore and Ohio engineers and construction forces while compiling a report and collecting data which will be submitted to the commissioner of railways on his return to Japan. The Japanese government is defraying the expenses of Mr. Nakamura while he is in America. He is making his headquarters with Principal Assistant Engineer Paul Diddier, of the Baltimore and Ohio, in charge of bridge construction. The extensive improvements which the Baltimore and Ohio Railroad has made of recent years attracted the attention of the directors of the Japanese railway system. A short while ago another of their engineering officers was engaged in a study of the Magnolia cut-off improvement, a double-track stretch eleven miles in length now under construction east of Cumberland.



THE TYPE TURNED OUT BY BALDWIN TWENTY-TWO YEARS AGO FOR PASSENGER SERVICE.

OLD GIRLS THAT SET THE STYLES IN ENGINES.

BY ARTHUR CURRAN.

ARTICLE VIII.

ONE of the most interesting features of locomotive development is found in the fact that many engines built at about the same period were of pretty much the same design, regardless of dimensions.

This principle is well illustrated by three Vauclain compound engines of the eight-wheel type, shown herewith, and built by the Baldwin Locomotive Works for the following roads: Cleveland, Akron and Columbus; Central Railroad of New Jersey, and Chicago and Northwestern.

In addition to the fact that all these engines are of the same type, with the same system of compounding, it will be observed that all three have extended wagon-top boilers of similar contour, and that the arrangement of the sand-box, dome, and bell is the same in all cases.

These engines, with the exception of dimensions and minor details, are practically alike, although intended for totally different classes of service.

The engine for the Cleveland, Akron and Columbus Railroad was built in 1892 for general passenger-service and had 68-inch driving-wheels. She represents the best practise for utility combined with substantial construction and sensible details. In fact, Baldwin built large numbers of engines of the same general design for railroads all over the country.

No. 385, for the Central Railroad of New Jersey, was one of the early Vauclain compounds, and was well known at one time as a very fast engine. She did not enjoy much fame, however, because the New York Central's 999 made a greater appeal for popular enthusiasm. The fact that the New York Central had so many fast engines

Mr. Curran's previous articles in this series appeared in September, October, and December, 1913; January, February, June, and August, 1914. Back numbers for sale at this office.

and made so many high-speed runs over long distances had a tendency to keep all other roads in the background.

To be sure, the Jersey road's ninety-mile Philadelphia run was not much when compared with the New York Central's four-hundred-and-forty-mile Buffalo run. On the other hand, the Jersey road made some very creditable performances at from one to five miles, and maintained an excellent service between Jersey City and Philadelphia.

The dimensions of No. 385 were: cylinders, 13 and 22 by 24 inches; driving-wheels, 78 inches in diameter.

Although an old-timer herself, she is a giantess compared with the Danforth and Cooke engine, shown herewith, and built for the C. R. R. of N. J. in 1862. I have included this curious little engine because comparisons—although said to be odious—are often interesting.

Over thirty years after this little Danforth and Cooke engine was built the Philadelphia and Reading put a number of engines in fast passenger-service with only a single pair of drivers.

The craze did not last long, however, and it is not likely that any single-driver engines are in existence to-day. If there are any, they certainly are not in evidence.

At one time such engines were popular abroad, but they were not satisfactory in this country.

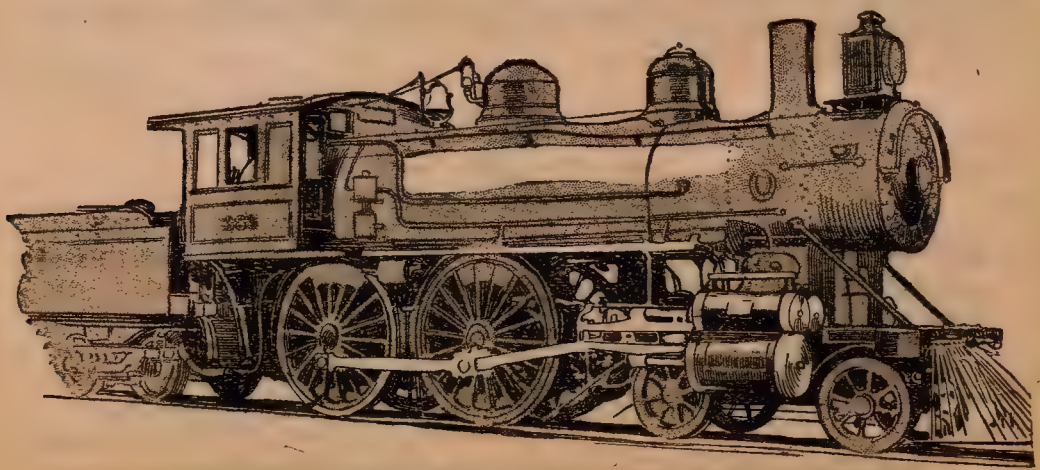
No. 821, for the Chicago and Northwestern, is something of a puzzle. Obviously too heavy for suburban service, her small drivers would scarcely fit her for through passenger traffic. It will be noticed that her boiler—especially that portion of it on which the dome is situated—is of generous size.

Just what sort of service this hog was intended for I am not prepared to say. Perhaps some old-timer on the Northwestern may read this article and recall this class of engine.

The dimensions of No. 821 were: cylinders, 12 and 20 by 24 inches; driving-wheels, 63 inches in diameter. She was built by Baldwin in 1892.

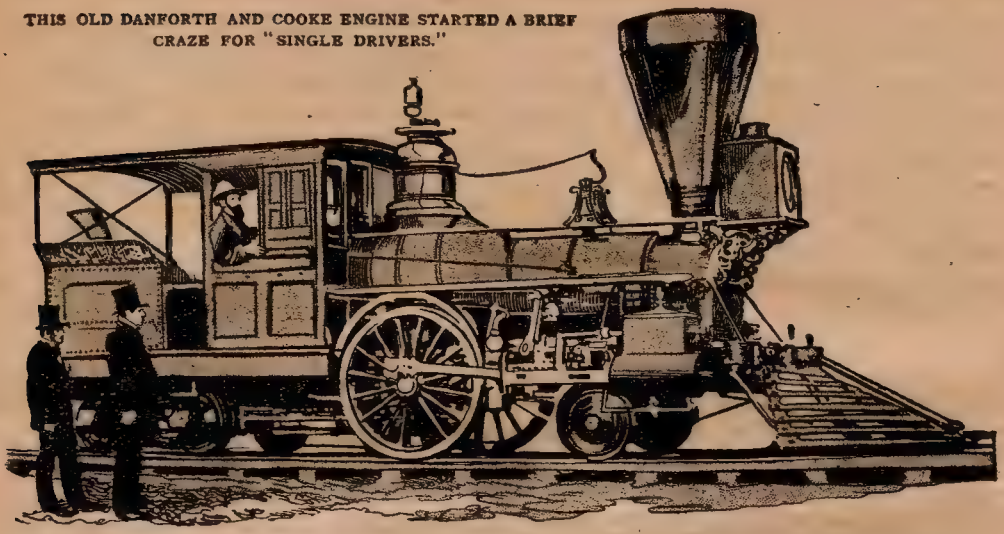
The photograph of the Mogul engine, No. 111, of the New York, Ontario and Western, was taken at Utica Station, New York, for the fireman. From what I have been able to ascertain, many engineers and firemen in the old days had photographs made of the engines on which they worked and which seemed like old friends whose likenesses should be preserved. The 111 was built at Rome, New York.

No. 386, for the Delaware and Hudson Railroad, was built by Dickson in 1889. She is still in service, and runs to Ausable Forks and Mooer's Junction, New York. The photograph was taken at Plattsburg, New York. This engine is one of many that were built by Dickson, and of which I have a distinct recollection. All of them were



EARLY VAUCLAIN COMPOUND NOTED FOR SPEED BUT ECLIPSED BY THE NEW YORK CENTRAL'S NO. 999.

THIS OLD DANFORTH AND COOKE ENGINE STARTED A BRIEF CRAZE FOR "SINGLE DRIVERS."



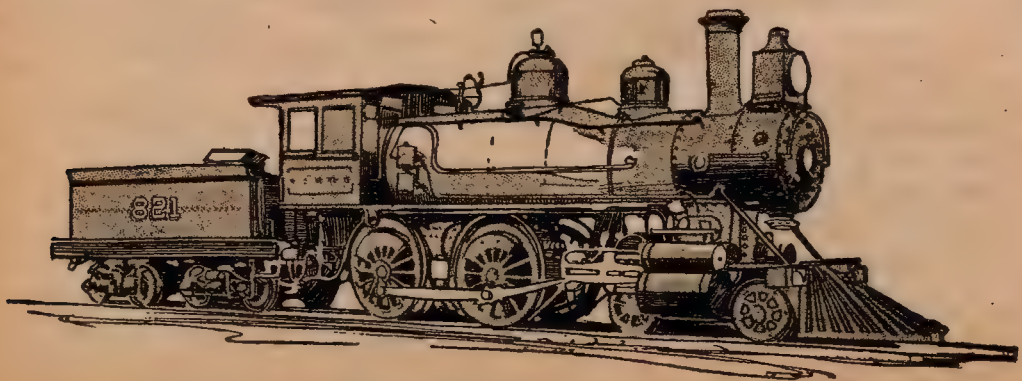
good engines, being thoroughly reliable.

Although this series is distinctly historical, it may be of interest to mention the subsequent development of motive-power on three of the roads referred to in this article.

The Central Railroad of New Jersey; New York, Ontario and Western, and the Delaware and Hudson are all "hard coal roads." Although originally equipped with engines of conventional design, they later adopted engines that are sometimes called "camel-backs" and at other times "Mother Hubbards." These later engines were built with the Wootten fire-box, making it necessary to place the cab over the boiler and near the stack. This arrangement was open to many objections, including the separation of engineer and fireman. Furthermore, the Wootten fire-box, although suitable for anthracite coal, was useless for bituminous coal.

A peculiarity of this form of fire-box is the grate, which, in many cases, is higher than the bottom row of tubes. This design made its appearance after the possibilities of the long, narrow, and shallow fire-box—placed on top of the frames—seemed to be exhausted. The Wootten style was used on the Lehigh Valley, Reading, Lackawanna, and Long Island, in addition to the roads already mentioned. There were several roads of less importance that also used this design.

It must be admitted that the large grate-area made possible by this form of construction was of some advantage in bringing about proper combus-



THIS CHICAGO & NORTHWESTERN HOG WAS ALWAYS A PUZZLE TO RAILROAD MEN.

tion of hard coal, but other considerations were also of importance.

At about the time that the Wootten fire-box came into prominence as the solution of the situation on hard coal roads trailing-wheels reappeared and really made the unconventional location of cab unnecessary. Curiously enough, the opportunity thus created was not grasped, and it is only within recent years that its possibilities have been realized.

One of the first Atlantic type engines, built by Baldwin for the Atlantic City Railroad in 1895, was constructed without any regard for trailing-wheels. In other words, the cab was placed over the boiler well forward, and the grate was as high as if trailers were not used.

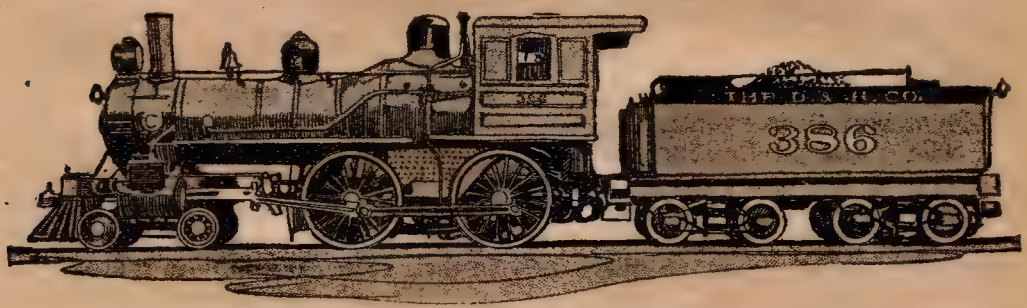
The Reading still clings to this form of construction, but the Lehigh Valley —notably in the case of its recently built Mikado engines—has shown the possibility of using big grate-area while keeping the cab where it belongs.

Similar proof has been given by the Lackawanna and the Delaware and Hudson, both of which use big grates, but keep engineer and fireman together.

Of course the last named roads still have in service a number of the old-style Wootten engines. I would not be surprised, however, if their construction were ultimately forbidden by law. While not wishing to harshly condemn such engines, it is only just and fair to state that there have been a number of narrow escapes with them, due to the engineer being taken sick suddenly or being hurt while the fireman was busy with his own duties and unable to see him. It is possible, also, that wrecks have been caused by so undesirable a condition.

An expert who has ridden on such engines told me that they were very comfortable and that he enjoyed the experience immensely. I will admit that some of them—notably the Atlantic engines on the Reading—are capable of terrific speed; in fact, they seem to "hit only the high places." As to comfort—well, I should say that the expert must have taken his ride on a cool day and on a *very* soft cushion!

In addition to the Atlantic and single-driver classes on the Reading



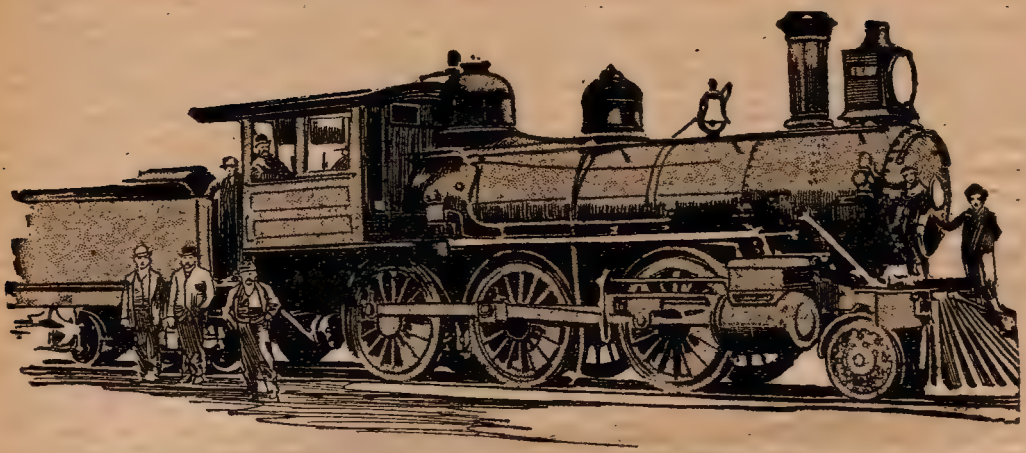
BUILT FOR THE DELAWARE & HUDSON, IN 1889, THIS DICKSON ENGINE STILL RUNS FROM AUSABLE FORKS TO MOORE'S JUNCTION, NEW YORK.

there was—if I remember correctly—a Columbia type which resembled the Atlantic, except that instead of a four-wheel leading-truck it had a two-wheel pony-truck.

The Reading had quite a number of interesting locomotives, among which the Atlantics were the most attractive. Many have survived to this day, and bid fair to retain their popularity for years to come unless their retirement is forced by law.

The Lehigh Valley had a number of Wootten Atlantics. These engines were not, however, as fast as the Reading engines. They were intended for a different service.

Having found eight-wheelers like No. 385 incapable of meeting their requirements, the Central Railroad of New Jersey adopted the Atlantic type with the Wootten fire-box. Engines



NO. 111 OF THE NEW YORK, ONTARIO & WESTERN, AN EARLY REPRESENTATIVE OF THE MOGUL TYPE.

of this class were built by Baldwin with a *guarantee* that they would make 90 miles an hour!

Having seen some of them in action, I am quite prepared to admit that the Baldwins kept their promise!

I believe that the Reading and Central of New Jersey are the only Eastern railroads that have held their own in the speed game. Most of the trains that were once the crack fliers of prominent Eastern roads have either been taken off or are *actually slower* than they were years ago! Just why this is so I am not prepared to say.

I frankly admit that the speed question is a large one and that recklessness must be prevented; also, that "safety first" is the proper slogan. The imposition of a speed limit, however, may be fraught with economic loss unless proper consideration is given to existing conditions. In other words, a speed of thirty miles an hour might be dangerous on a badly kept road, whereas a velocity of ninety miles an hour would be perfectly safe on a well-maintained system.

It is quite possible that those who travel for pleasure only are in no hurry, and that high speed is not essential in their case. But are the railroads to consider only this class of passenger? To be candid, are the railroads run for the sole benefit of those who place no value on time?

Business men who must hasten from place to place are not interested in the scenery along the right-of-way; *they want to get there!* The railroads are quite willing to let them "get there" if not hampered by silly laws.

In the RAILROAD MAN'S MAGAZINE for November

WHEN THE LOCOMOTIVES MEET, by F. B. Vogel.
Famous Engines of the Past Hold a Unique Roundhouse Convention.

GOVERNMENT RAILROADING IN NEW ZEALAND, By W. D. Hornaday.
Told by a Man Who Made a Personal Investigation.

QUEER RAILROAD INVENTIONS, By Charles Frederick Carter.
One of Them is a Petticoat for Passenger Cars! There are Scores of Others Equally as Odd.

THE RACE FOR THE MAIL CONTRACT, By John Walters.
How Two of the Largest Railroad Systems in America Made Speed for Uncle Sam's Mail.

AND A DOZEN OTHER POPULAR AND INFORMING SPECIAL ARTICLES IN OUR FIRST BIG FALL NUMBER.

By the Light of the Lantern

Ask us what you want to know

WE want to be as useful as possible to our readers, but, because of the great popularity of this department, we are obliged to impose certain restrictions. It is limited to the answering of questions of an informative, technical, or historical nature only. We cannot answer requests for positions or give information regarding employment. All letters should be signed with the full name of the writer, as an indication of his good faith. We will print only his initials. The editor begs that readers sending in questions will not be disappointed if the answers do not appear as early as expected. It frequently takes weeks to secure correct answers, owing to the complexity of the questions. All questions are answered free of charge.

EXPLAIN the terms "tractive-effort" and "factor of adhesion."

(2) On what road is the most powerful Consolidation type locomotive in service?

(3) Mention and give principal dimensions of some mountain type locomotives built by the American Locomtoive Company.

(4) Would it be possible for a locomotive in road service to have a Baker valve-gear on one side and a Walschaerts gear on the other?

(5) Will a four-cylinder simple engine pull one-half as much more than a regular two cylinder of the same dimensions?—T. T. T., Montclair, New Jersey.

The expressions "tractive-effort," "tractive-power," or "draw-bar pull" are used more or less interchangeably to indicate the power developed by a locomotive just at the moment of starting with the reverse-lever in full gear and the throttle-valve fully open. If there is no slip the locomotive then exerts its maximum tractive-effort. At starting speeds a locomotive will usually develop, at the rim of the driving-wheels the rated tractive-effort which is calculated from the dimensions of the engine.

The factor of adhesion or the adhesive qualities of a locomotive is the resistance which prevents or opposes the slipping of the driving-wheels on the rails due to the friction. Other things being equal, the adhesion of a locomotive is the measure of its power. The useful work which a locomotive can perform is limited by the coefficient or proportion of adhesion that exists or can be created between the driving-wheels and the rail. In other words, as soon as the effect of the steam produces a tractive-force greater than the adhesion, slipping is the result. The amount of adhesion depends on the weight or pressure of the surface in contact and consequently on the load that rests on each wheel. Much also depends on the condition of the rails and the material of which they and the tires of the wheels are made. In ordinary practise and under ordinary conditions it is found to equal one-fifth of the weight resting upon the driving-wheels.

(2) The most powerful Consolidations are those in use on the Toledo division of the Wheeling and Lake Erie Railroad. Twenty of them were built by the American Locomotive Company in 1913. They are equipped with what the builders term a one hundred per cent boiler, and were guaranteed to furnish a constant supply of steam for any sustained speed the locomotive cylinders are capable of making.

(3) Recent Mountain type locomotives built by the American Locomotive Company were those for the Rock Island lines of which there were two, numbered 998 and 999. These engines weigh 330,000 pounds; drivers, 69 inches; boiler pressure, 185 pounds; cylinders, 28 x 28 inches; tractive-power, 50,000 pounds. Those built for the Missouri Pacific Railway Company, of which there were seven for use on the Missouri division between St.

Louis and Poplar Bluffs, weigh 296,000 pounds; weight on drivers, 208,000 pounds; boiler-pressure, 170 pounds; cylinders, 28 x 28 inches; tractive-power, 50,400 pounds. Those for the Chesapeake and Ohio weigh 330,000 pounds; weight on drivers, 239,000 pounds; diameter of drivers, 62 inches; boiler-pressure, 180 pounds; cylinders, 29 x 28 inches; tractive-power, 58,000 pounds.

(4) Yes. The two or more engines have no relation to each other further than their attachment to the driving-wheels and the variation in the angle at which the main crank-pins are set. The difference in the particular form of the valve-gearing is of no significance further than the inconvenience of having a variety of different mechanical appliances on the same engine, which would add to the complexity of an apparatus sufficiently involved already. On a three-cylinder type of locomotive on the Philadelphia and Reading there are two of the engines equipped with the Walschaerts valve-gear while the other engine, being centrally located, is equipped with the Joy valve-gear which is admirably adapted for the limited space available between the frames.

(5) Some time ago the Chicago, Rock Island and Pacific Railway had a number of simple engines equipped with superheaters and also a number of balanced compounds equipped with superheaters. Both proved to have important advantages, and in order to secure in one engine the advantages of both classes, it was decided to combine the more important features of each in a four-cylinder balanced simple locomotive using superheater steam. Exceptional opportunities were afforded to make comparison between the different classes of engines working under identical conditions. Careful records were kept to permit of a just comparison. The following are the comparisons:

Atlantic (4-4-2) simple engine, 2 cylinders; total weight, 180,000 pounds; weight on driving-wheels, 102,000 pounds; pressure, 185 pounds; tractive-power, 24,700 pounds; tonnage, 375; speed per hour, 45 miles.

Atlantic (4-4-2) simple engine, 4 cylinders; total weight, 202,000 pounds; weight on driving-wheels, 116,000 pounds; pressure, 170 pounds; tractive-power, 29,600 pounds; tonnage, 462; speed per hour, 50 miles.

The two-cylinder engine used thirteen per cent less water than the four-cylinder engine, and seventeen per cent less coal. From these figures certain deductions can readily be drawn that show an average of over thirty-three per cent in actual tonnage at about twenty per cent more fuel and other items of expenditure.

J. W. D., Marion, Ohio.—The Miller automatic train-control is in use on twenty-four miles of double track of the Chicago and Eastern Illinois Railroad. Ninety locomotives running over this section of the road, both passenger and freight, have been equipped with the apparatus. There are other sections of the road, aggregating twenty miles, which have been equipped, but the apparatus is not yet in use. Regular reports of the operation of the apparatus are made by the enginemen. Many tests have been made with both passenger-trains and freight at both high and low speed.

During eight months of service there were unusually severe conditions of sleet and snow, but no weak points developed. Ramps covered with snow and ice caused no interruption. The records of this service show instances of "safety failure" or unnecessary stops due in general to such causes as commonly affect automatic signal operation; but in no case has the control apparatus failed to bring the train to a stop when the block was occupied or the signal at stop.

It has also been announced that the Jones automatic train-stop and cab signal is installed on twenty-six miles of the Maryland and Pennsylvania Railroad. The automatic stop of the Union Switch and Signal Company is being tested on the Delaware, Lackawana and Western near Newark, New Jersey. This road is also installing the Federal Signal Company's audible signal for test. The New York Central and Hudson River Railroad is testing the Induction Signal and Safety Company's system; New York, New Haven and Hartford will test the installation of the Union Switch and Signal Company, and another installation is to be made for test on that road by the International Signal Company. The Pennsylvania Railroad expects soon to test the induction apparatus of J. P. Finnegan, and they have been experimenting with the Gray-Thurber automatic stop. The Buell automatic

train-stop is still under test on the Queen and Crescent Railroad.

J. M. N., Duluth, Minnesota.—The standard rule on American railroads is to use blue signals to protect workmen who may be repairing a car or engine on tracks outside of shops. A blue flag by day or a blue light by night, displayed at one or both ends of an engine, car, or train indicates that there are workmen under or about it. When thus protected it must not be coupled to or moved. Workmen must display these blue signals, and the same workmen are alone authorized to remove them. Other cars must not be placed on the same track so that they may in any way obstruct the view of the blue signals.

WHAT is the crown-sheet?

(2) Is the Stephenson or Walschaerts valve-gear best for fast passenger service?

(3) Explain the type of valve-gear in use on the Chicago and Rock Island and Pacific Railway engines numbered 2500.—E. W. T., Morning Sun, Iowa.

In a locomotive the crown-sheet is the plate or sheet directly over the fire and forming the roof of the fire-box. Crown-sheets are sometimes flat and sometimes curved. They are also made in one continuous sheet with the fire-box side sheets. In any case they must be strongly supported, and this is accomplished by crown-bars, radial stays, or in the case of the Belpaire fire-box, straight, vertical, and horizontal stays. As the crown-sheet is exposed to the intense heat of the fire-box on one side and covered with the water in the boiler on the other a violent formation of steam takes place on its surface.

(2) The superiority of the Walschaerts valve-gear over the Stephenson gear is almost universally conceded so far as its application to the modern high-powered locomotive is concerned. The principal advantages are the ready access to all parts of the mechanism, the stability of action in retaining the correct position of the valves after a much longer period of service than is the case with the Stephenson gear. In addition to those advantages the Walschaerts gear may also be made much lighter in weight and relieves the axles of the burden of the weight of the eccentrics and attachments.

The only point on which a difference of opinion may be sustained is the fact that in shortening the travel of the valve by moving the reverse-lever toward the center of the quadrant the amount of lead or valve opening at the end of the piston stroke increases in the case of the Stephenson valve motion, while in the Walschaerts gear the amount of lead remains the same at all points of cut-off. This increase of lead is claimed by some engineering authorities to be an advantage in the case of a high-speed passenger locomotive, as it must be admitted that the faster the piston is moving there is a need for a greater opening of the valve at the end of the stroke, because while the velocity of steam at a certain pressure may be said to be a constant velocity, some instant of time is taken up while the volume of steam is finding its way from the steam chest through the steam ports to the cylinders. The faster the piston is moving there is need for a quicker and wider opening of the valve.

This advantage, if any, can be readily secured on the Walschaerts valve-gear by adjusting the gear to the desired amount of opening that is best calculated to suit the requirements of the service at such speed and at such point of cut-off as will be called into use. Though opinions may differ in regard to this particular, in every other point the superiority of the Walschaerts valve-gear is almost universally acknowledged.

(3) No doubt you refer to the Mikado type locomotives on the Rock Island lines, sixty-five of which, numbered 2500 to 2539 and 2550 to 2574 were built last year. All of these engines were equipped with the Baker valve-gear. This type of valve-gear gets its motion from two points, the eccentric-crank and the cross-head. The eccentric-crank moves the radius-bar and the action of the radius-bar on the valve is controlled by the reverse-yoke.

The radius-bar and the yoke take the place of the link and block of a link motion. The cross-head connection moves the valve the amount of the lap and lead each way. This makes the lead constant and independent of the cut-off. The lead being constant, the valve should show the same lead opening in all cut-off points when the engine is in either dead center.

In this form of gearing, now improved and perfected by some recent changes in construction, the eccentric-crank always follows the crank-pin. It stands the same for both inside and outside admission. The device resembles the Walschaerts valve-gear in several particulars. The eccentric-crank is similarly attached to the main crank-pin, and the combination lever is similarly attached to the cross-head. The particular variation is in dispensing with the radial link. All link motions, whether fixed on a central pivot—as is the case with the Walschaerts gear; or shifting, as in the Stephenson gearing—are the source of growing errors in the motion of a valve.

A. M. H., Rochester, New York.—The Beech Creek Railroad, the main line of which extends from Jersey Shore to Mahaffey Junction, Pennsylvania, is part of the New York Central system. In 1890, the Beech Creek Railroad was leased for a term of 999 years to the New York Central and Hudson River Railroad.

The Fall Brook Railway is now also a part of the New York Central lines. In 1909, the Fall Brook Railway through consolidation became part of the Geneva, Corning and Southern Railroad. The latter road was leased to the New York Central and Hudson River Railroad for the term of its corporate existence.

The Narragansett Pier Railroad extends eight miles from Kingston to Narragansett Pier, Rhode Island. This road has been leased to the Rhode Island Company. The rolling stock consists of three locomotives, seven passenger cars, and thirteen freight cars. W. C. Clarke, Peace Dale, Rhode Island, is superintendent. The road is operated by steam power, but will be electrified and operated in connection with the Sea View Railroad.

F. T. F., Lawrence, Massachusetts.—Locomotive No. 2600, of the Boston and Maine Railroad, is the consolidation of 2-8-0 type. This engine was built by the Baldwin Locomotive Works. The principal dimensions are: cylinders, 22 x 30 inches; working steam-pressure, 200 pounds per square inch; diameter of drivers, 61 inches; tractive effort, 40,500 pounds; total heating surface, 3,189 square feet; grate area, 53 square feet; weight on drivers, 180,300 pounds; total weight of engine, 203,900 pounds.

The principal dimensions of Boston and Maine locomotive No. 3620 are: cylinders, 22 x 28 inches; working steam-pressure, 200 pounds per square inch; diameter of drivers, 73 inches; tractive effort, 31,600 pounds; total heating surface, 3,036 square feet; superheater surface, 680 square feet; grate area, 53 square feet; weight on drivers, 148,000 pounds; total weight of engine, 235,000 pounds.

IN what year was the RAILROAD MAN'S MAGAZINE first published? Can the first issues be purchased, and where?

(2) What is the mileage of the St. Louis and San Francisco Railroad and the Southern Pacific Company?

(3) Is the Pecos Bridge over Pecos Cañon on the Southern Pacific the highest bridge in America?

(4) What are the wages paid section foremen?

(5) What is the highest speed ever attained by a railroad train?

(6) Is Horace H. Herr, who writes for the RAILROAD MAN'S MAGAZINE, a railroad man. If so, in what capacity?—C. M. J., Evarts, Louisiana.

The first issue of the RAILROAD MAN'S MAGAZINE was published in October, 1906. Back numbers can be purchased at this office by remitting at the following rates: Current year, 15 cents a copy; five years back, 25 cents a copy; all other numbers, 50 cents a copy.

(2) The St. Louis and San Francisco Railroad operates 4,749 miles; the Southern Pacific Company, 6,487 miles.

(3) No. The highest bridge on the American Continent is the Loa Viaduct, which was built over the river of that name to take the Antofagasta Railway into Bolivia, South America. This viaduct is 800 feet in length, with rails 336½ feet above the Loa River. The situation of this structure is probably unique inasmuch as it is built at an elevation of 10,000 feet up in the Andes, where the wind blows with unusual velocity, but where the weight of the atmosphere is only about two-thirds of what it is at the sea-level.

The Pecos bridge is the highest in the United States. This bridge, on the Southern Pacific Railway, is 2,180 feet in length and 321 feet above the Pecos River, which it spans 219 miles west of San Antonio, Texas.

(4) The average compensation for railroad section foreman (1913) is $2.13 per day.

(5) For distances under fifteen miles the electric locomotive which was tried on the Berlin-Zossen line in Germany, made a speed of over 130 miles per hour. This has not been equaled by any steam locomotive.

(6) Horace H. Herr is a former railroad man. He is now managing editor of the Indianapolis *Times*.

F. M., Hamilton, Canada.—Locomotive No. 1700, of the Philadelphia and Reading Railroad, is a Mikado or 2-8-2 type. These locomotives are the heaviest of their type, both as regards total weight and weight on drivers. They exert a tractive force of 57,319 pounds. A description and general dimensions will be found on page 544 of the March, 1914, RAILROAD MAN'S MAGAZINE.

The Mikado type locomotives of the Grand Trunk Railway, numbered 500, exert a tractive force of 51,700 pounds. The principal dimensions of these locomotives are: cylinders, 27 x 30 inches; working steam-pressure, 175 pounds; diameter of drivers, 63 inches; total heating-surface, 3640 square feet; superheater surface, 757 square feet; grate area, 56 square feet; weight on drivers, 213,500 pounds; total weight of engine, 283,000 pounds.

We have no record of the Empire State Express of the New York Central and Hudson River Railroad ever having made a run of any kind at the rate of 185 miles per hour and doubt very much the authenticity of such a performance. The fastest recorded run of this train was for one mile at the rate of 102 miles per hour, on May 9, 1893.

CAN a young man seventeen years of age who wants to be a fireman get an application-blank, and, if he passes the examination, work as an engine-wiper in the roundhouse until he is old enough to go out as fireman?

(2) Who is master mechanic on the Southern Pacific at San Francisco?—J. J. S., San Francisco.

(1) Certainly, if he can get the opportunity. We have seen engine-wipers younger than seventeen, but, as we have repeatedly stated, each railroad company has its own regulations in regard to the age of an applicant. Much depends on what may be called his physical appearance. As a rule, no railroad will employ a minor without the consent of his parents or guardians.

(2) C. E. Burroughs is master mechanic on the Southern Pacific at San Francisco.

C. C. R., Brooklyn, New York City.—The Tanana Valley Railroad of Alaska operates 45 miles from Chena to Chatinika and Fairbanks, Alaska. The road is 3-foot gage. The rolling-stock consists of 4 locomotives, 4 passenger-cars, 1 electric storage-battery car, and 26 freight cars.

The Catskill Mountain Railway operates 20 miles from Catskill to Palenville, New York, and from Cairo to Cairo Junction, New York. The rolling-stock consists of 4 locomotives, 12 passenger cars, and 22 miscellaneous cars. The road is 3-foot gage.

The Adirondack Railway, Saratoga to North Creek, New York, is owned by the Delaware and Hudson Company.

A LOCOMOTIVE of 500 horse-power is coupled to a train of five passenger coaches, the throttle is thrown wide open, and it is found that the engine cannot run faster than forty miles an hour. Now we couple another locomotive of equal power and both are run with wide-open throttles. A says that the two engines cannot pull the five cars any faster than one can. B says that the two locomotives can pull the train much faster. Which is right?—W. G. C., Philadelphia.

B is right. While no dimensions of wheels or cylinders or steam-pressure are given it is safe to assume that the locomotives are adapted for passenger service, and that the wheels are probably about six feet in diameter. With a light load such a locomotive should be able to run between fifty and sixty miles under favorable conditions. If the load is such that one locomotive cannot run faster than forty miles an hour it is very safe to assume that it will run faster with a lighter load, and it will also run faster if the power is increased, as in the case proposed. The amount of increase would depend on the dimensions and weight of the engines.

This statement is borne out by the fact that the highest-powered high-speed locomotives will require all their force to propel the locomotive alone at 120 miles an hour, whereas, if sufficiently loaded, ten miles per hour might consume all their tractive-effort. Repeated experiments have shown that the tractive-effort required at various velocities may be calculated by dividing the speed in miles per hour by 4, and add 2 to the quotient and the result will be the number of pounds of tractive-effort required to move one ton. An increase of tractive-effort will always, under normal conditions, increase the speed.

W. F. B., Topeka, Kansas.—All piston-valves do not work the same. They are divided into two general classes, one of which is designated as the internal and the other as the external admission type. Each class or style derives its name from the manner in which steam is admitted to and exhausted from the cylinder. With internal-admission valves the live steam is confined between the two heads, is admitted to the cylinder by the inner rings, and exhausted from it by the outer rings; the reverse being the case with external-admission valves.

The operation of the external-admission type more nearly corresponds to that of the ordinary slide-valve than does the working of the internal-admission valve.

I NOTICED in your magazine recently an answer to the following: Two towns are located seven miles apart. A man getting on the caboose of a freight-train one mile in length walks toward the head end and gets to the engine by the time the engine arrives at the next town. The train, of course, has run six miles. How far has the man ridden? You answer that the man rode seven miles.

I am unable to see how you figure this out. Let us suppose the man did not walk over the train or the one mile. When the engine arrived at the second town he would have been one mile from that place. But he did walk a mile or the length of the train and got to the town; consequently I figure it that he only rode six miles.

If your answer to the above is correct, please state how far the man rode in the following: Two towns are four miles apart. A man got on the engine and walked to the rear end and arrived there by the time the caboose arrived at the second town. Of course, the train, being one mile long, ran five miles. I contend that the man rode five miles, but it would seem to me if we figure this problem the way you have figured the first, you would say he rode only four miles, or the distance between the two towns.—M. E., Van Wert, Ohio.

It is not necessary to repeat our previous answer, but it may be added by way of explanation that in walking a man cannot be looked on as having left the earth or whatever he may be walking on. In walking forward on a moving object, as aboard ship, he is moving through space faster than the ship. On walking backward, that is, toward the stern of the ship, he is moving through space slower than the ship, but in both cases he is carried by the ship. The variation is merely a matter of a variation in time. In your question, the man was carried through space four miles. By walking toward the rear end of the train he was carried four miles while the train ran five miles. The space from starting to stopping point are the spaces to be measured in ascertaining how far the man has been carried.

K. R. F., Saugerties, New York.—In relay offices the average telegraph operator handles approximately 25 messages an hour. A man handling a Chicago line from New York would average 35 or 40 an hour. There are men capable of handling as many as 50 to 70 messages an hour. The men work 9 hours a day, night shifts, 8½ hours. The average salary is $19 per week, the minimum $17, and maximum $23. We understand that in the larger offices there is a demand for men of ability.

WHAT pressure will a six-inch tube of iron, one-eighth of an inch in thickness stand, and at what pressure should the safety-valve be set?—E. W. T., Rising Sun, Iowa.

Lap-welded tubes are allowed a working pressure of 225 pounds per square inch, if of the thickness given below, provided that they are deemed safe by the inspectors: 1 and 1¼ inches, diameter, 0.072 in thickness; 1½ inches diameter, 0.083; 1¾ inches, 2 and 2¼ inches, 0.095; 2½, 2¾

and 3 inches, 0.109; 3¼, 3½ and 3¾ inches, 0.102; 4 and 4½ inches, 0.134; 5 inches, 0.148; 6 inches, 0.165.

It will be seen from the above that in order to have a safe working-pressure at 225 pounds in a tube of 6 inches in diameter the tube would require to be about one-sixth of an inch in thickness. In a tube of one-eighth of an inch in thickness the pressure should be one-third of an inch less which would be about 168 pounds. The safety-valve should be set at this pressure.

D. J., Fairmont, West Virginia.—The Delaware, Lackawanna and Western Railroad operates 985 miles, which include owned, leased, and controlled lines.

R. L. C., Texas City, Texas.—The Charleston and Western Carolina Railroad is owned by the Atlantic Coast Line. The Winston-Salem South-Bound Railway is owned jointly by the Norfolk and Western Railway and the Atlantic Coast Line, each being an equal owner. The Northwestern Railroad of South Carolina is leased by the Atlantic Coast Line. The Atlantic Coast Line Railroad operates 4,623 miles, 816 locomotives, 630 passenger cars, and 27,775 freight cars.

There is a run recorded on the Atlantic Coast Line from Florence, South Carolina, to Rocky Mount, North Carolina, a distance of 172.2 miles, in 3 hours, or at the rate of 57.70 miles per hour, made April 9, 1897. This is no doubt the fastest run for any sustained distance on the road.

C. E. S., Columbus, Ohio.—Metal or steel ties have not been used very extensively throughout the United States owing to the abundant supply of good and cheap timber here. With a decrease in quantity and a corresponding increase in the cost of wooden ties the steel tie becomes a consideration from an economical view-point. Excellent and easy-riding track is made with a good steel tie, and while many different forms have been tried, only a comparatively small number have proved successful. Metal ties have been used extensively throughout Europe, Africa, India, Mexico, and South America. In 1907 over 15,000 miles of track in Germany was laid with steel ties, which was thirty-three per cent of the railway systems of that country. The principal advantages of steel ties are longer life, reduction in the wear of rails, superiority of track, a permanent road-bed, due to a reduction in renewals and maintenance, and a similar reduction in cost and labor of maintenance.

Since 1904 the engineers of the Carnegie Steel Company have been making a study of the subject with a view of introducing the rolled steel tie in this country. ties were laid at Claytonia, Pennsylvania, In 1904, about 1,200 Carnegie I-beam steel and these proved so successful that at the close of 1910 over 566,000 had been laid on important railways, but principally on the Bessemer and Lake Erie Railroad, where there were over 250,000 in main line track. The ties used on the Bessemer and Lake Erie are 8½ feet long, 5½ inches deep, top flange 4½ inches and the bottom 8 inches wide, with an average weight of 180 pounds exclusive of fastenings. It is reported that these ties are doing excellent service, and that they are economical in view of track maintenance and probable life, the rate of corrosion on those first laid indicating a life of from 25 to 30 years.

J. A. W., Leavenworth, Kansas.—The grade reduction project known as the Summitt-Halstead cut-off on the Delaware, Lackawanna and Western will not be completed before the end of 1915. This improvement, which involves some of the heaviest grading and concrete bridge work ever undertaken, will have cost about $12,000,000. It will make possible very important operating economies as it reduces the length of line by 3.6 miles, and the maximum grade east-bound from 1.23 per cent uncompensated to 0.68 per cent compensated, and west-bound from 0.52 per cent uncompensated to 0.237 per cent compensated.

The amount of rise and fall eliminated amounts to 327 feet, the maximum degree of curvature is reduced from 6 degrees, 22 minutes, to 3 degrees, and 2,440 degrees of central angle or about 60 degrees per mile are saved by the new line. The third track, which is provided by the reconstructed line for practically the entire distance, will also be an important factor in handling the increasingly heavy traffic.

The Nicholson viaduct across Tunk-

hannock Creek is 2,375 feet long, end to end of masonry, and 242 feet from top of coping to stream bed. When completed it will be the largest concrete arch-bridge in the world. It is composed of ten 180-feet semicircular intermediate arch-spans, and two 100-feet semicircular abutment spans designed to carry two tracks. This viaduct will contain 167,000 cubic yards of concrete and 2,275,000 pounds of reenforcing steel.

HOW should Youghiogheny be pronounced?

(2) What is the speed per hour of the fastest Canadian Pacific trains between Montreal and Toronto; also between Toronto and Sudbury?—J. A. G., Barnesdale, Canada.

Youghiogheny is pronounced Yok-o-gane. It is the name of a river in Pennsylvania and Maryland, and is an Indian word, meaning "stream flowing in an opposite direction."

(2) Train No. 19, "The Canadian," is scheduled to run 338 miles between Montreal and Toronto in 8 hours 55 minutes, or at an average speed of 38.9 miles per hour. Between Toronto and Sudbury, train No. 3 is scheduled to run 260 miles in 8 hours 5 minutes, or at an average speed of 32.7 miles per hour.

H. E. S., Reading, Pennsylvania.—The particulars in regard to the details of the capacity of steam-pumps are always furnished by the constructors, and it is very safe to assume that they are nearly always correct. It would not be possible for us to furnish details of the exact discharge of water through a pump unless we were furnished with complete details of the measurements of pipes and pistons and length of stroke with average steam pressure. Even then there are variations on the capacity of pumps of different kinds, and while we are familiar with many kinds of pumps, it would be invidious to make comparisons.

PLEASE print the wireless telegraph alphabet.

(2) What is the minimum salary paid wireless operators on coast steamships?

(3) In your opinion how long would it take a Morse operator of six years' experience to learn wireless?

(4) Would it be more advantageous to enter a school where wireless is taught or to take up the study in a wireless station?

(5) Have any of the wireless schools the government indorsement?

(6) Have the wireless operators an organization?

(7) Will wireless ever be used in train despatching?—G. P. M., Redland, Georgia.

Wireless messages are sent and received in alphabetic code, that is, in dots and dashes. There are three different dot-and-dash codes used—the Morse, the Continental, and the Navy Signal. The beginner should learn to send in one of these, preferably the Continental, which is most widely used. We will print the wireless alphabet in our next (November) number.

(2) Thirty dollars per month and found.

(3) One year.

(4) By all means go to a school. There are any number of schools, better select one having the Marconi indorsement.

(5) We know of no school having a government indorsement. To become a wireless operator one must pass the government's examination.

(6) We understand there is such an organization under consideration at the present time.

(7) We could not venture an opinion as to the general adoption of wireless telegraphy in the control or despatching of trains. At the present time the Delaware, Lackawanna and Western Railroad is using wireless on certain trains and have wireless stations at Scranton, Pennsylvania, Binghamton, New York, Hoboken, New Jersey, and have contracted for several more stations.

P. C. N., Reno, Nevada.—The New York, New Haven and Hartford Railroad is electrified from New York City to New Haven, Connecticut, a distance of 72.28 miles. This covers its four-track system and all switches and sidings. The road is running on an average of twenty trains per day by electric power between New York and New Haven. The road has not a sufficient number of electric engines to run all trains over this division, but all passenger-trains are run by electricity as far as Stamford, Connecticut, and some fast freight trains as far as

New Haven. From sixty to ninety cars are hauled on the freight trains by two motors.

When the bridge known as the New York Connecting Line Bridge now under construction from Port Morris, New York, on the Harlem division of the New Haven to Long Island City, is completed, it will do away with the present method of carrying freight-trains on barges around New York City. Inside of four or five years the New York, New Haven and Hartford Railroad will be running through trains between Washington, D. C., and Boston, via the New Haven and Harlem River branch at New Rochelle. They will run along that branch line and over the new bridge to Long Island City, then under the Pennsylvania Tube to Thirty-Third Street and Seventh Avenue, New York City, and then on to Washington. At present the Boston-Washington express is carried between Mott Haven and Jersey City, New Jersey, on a fast ferry barge.

L. A. M., Truro, Massachusetts.—It is evident that the English biographer of Brigadier General Frederick Funston, United States Army, was mistaken when he stated that he began life on the railroad. According to his official biography, General Funston's first occupation was that of newspaper reporter in Kansas City. He was also an expert botanist, and headed an expedition for the United States government through Death Valley and the Klondike. In the winter of 1894, he had the novel experience of floating down the Yukon River alone in a canoe. He was an officer in the Cuban Insurgent Army in 1896-1897, where he served for eighteen months, and, later, he was given a commission in the United States Army.

It may be that in his very early life General Funston was a railroader, but if so there is not official record.

G. O. B., Newark, New Jersey.—In the August number of the RAILROAD MAN'S MAGAZINE you asked the following question, which we requested our readers to answer:

> There is a part of an old road-bed in Upper Montclair and also in Verona, New Jersey. There also seems to be part of a tunnel through the mountain at Montclair, New Jersey. Can you give me any information regarding this road—when it was built, and if trains ever ran over it?

Mr. Thomas T. Taber, Jr., of Montclair, New Jersey, has sent us the following which, we are sure, is correct in every detail:

> About 1870, the New Jersey Midland Railroad Company tried to run a branch from Montclair to Caldwell, and probably contemplated some day running the line through to Morristown. The line was to go almost due west from the present route of the Erie to a mountain which was to be tunneled.
>
> After emerging from the tunnel, the right-of-way extended on an embankment to Verona Lake, which was to be crossed on a high trestle; then it was a straightaway road to Caldwell. The short cut started at grade a short distance north of the Chestnut Street crossing, and by a gradual incline on an embankment it ran west over Central Avenue and Valley Road, then crossed North Mountain Avenue at the grade. Then by means of a cut the tunnel was approached.
>
> The construction work was rapidly pushed from each side of the tunnel and the line graded. All of the engineering work was under the supervision of Mason Loomis, who resided in Montclair for a number of years.
>
> In tunneling the mountain a heavy stream of water was struck, and the inability to cope with this successfully caused an aggravating delay. Right on the heels of this setback came the panic of 1873, during which the New Jersey Midland became insolvent and the proposed road was abandoned.
>
> After reorganization, the company was known as the New York and Greenwood Lake Railroad. The new company never completed the short-cut, but built a roundabout branch from Great Notch, a point on the main line, through Cedar Grove, Overbrook, and Verona to Essex Fells, via Caldwell, thereby avoiding a tunnel.
>
> The only part of the attempted short-cut now in use is a stretch of about one mile, extending from the Verona line to Caldwell. This part of the line parallels Bloomfield Avenue to Caldwell station. From Caldwell the branch continues to Essex Fells, about two miles, its terminus,

from which point an affiliated road extends to Morristown.

Much money was spent on the original short line, and not all of the contractors received their money for the work they did. The structural work was allowed to go to decay, and had to be removed by the town. An old resident of Montclair recently said:

"When I was a boy, I remember that we used to have rafts which we would pole about in the tunnel's mouth and in the excavation. On the hottest days the place was always cool and the water like ice."

About thirteen years ago the heading of the tunnel caved in and, in a large measure, stopped up the tunnel brook which used to flow far more abundantly than now.

The New York and Greenwood Lake Railroad was leased to the Erie about five years ago, which now operates improved and modernized train service over the system. While the Erie has not used the right-of-way, it is apparent that it has not been abandoned. The Erie still pays taxes on the property, and keeps it fenced in. It is a matter of speculation whether the old line will ever be used, as the Erie has a Caldwell branch and the traffic is not very heavy.

TOLD IN TABLOID.

Brief Answers to All Kinds of Questions that Puzzle Our Readers.

GREAT BRITAIN and the United States agreed on the standard candle. It is made of pure spermaceti, exactly round, 7/8-inch in diameter, and of a length such that six weigh one pound, and with wick adjusted to burn 120 grains of spermaceti per hour. The one-million-candle-power searchlight must emit a light equal to 1,000,000 such standard candles.

Steel squares for carpenters were first manufactured at Bennington, Vermont.

The first railroad in China was opened for service June 13, 1876.

A wins. The construction of the Erie Canal was begun July 4, 1817, at Rome, New York.

A "crossover permit" is necessary before a train may cross from one track to another.

In districts not controlled by telegraph block, trains must keep ten minutes apart when going in the same direction.

The principle of the gyroscope's stability is known only to the highest mathematicians. They have completely solved the complex problems of this intricate wonder.

The republic of Mexico has about 16,000 miles of railroad. The Southern Pacific Railroad of Mexico is owned outright by the Southern Pacific Company.

The first transcontinental railroad in the United States was completed by the joining of the Union and Central Pacific Railroads, in 1869. The Central Pacific is now known as the Southern Pacific.

Wild dogs growl, snarl, howl, but they never bark. The true bark of the domesticated dog is the result of his long association with man, and of his attempt to speak in answer to a command.

To convert Fahrenheit degrees into Centigrade, subtract 32, multiply the remainder by 5, and then divide by 9. To convert Centigrade to Fahrenheit, multiply by 9, divide by 5 and add 32.

The only time that two trains ever took part in a race was fully described in "Two Trains Race for Glory," by Thaddeus S. Dayton, in the RAILROAD MAN'S MAGAZINE for April, 1914. Once an article is published we cannot print it again. Send 15 cents to this office for a copy.

The Transandine Railway over the Andes Mountains is owned in Great Britain, and both the contractors and engineers were Britishers. Its great tunnel through Cordillera Mountains is spiral. It reaches an elevation of nearly 1,500 feet. This is higher than the highest carriage road in Europe.

The meat-packing industry was originated by Sylvester Marsh, an American engineer; born, September 30, 1803; died, December 30, 1884. Mr. Marsh was one of the founders of Chicago. He invented a number of appliances that were incidental to the success of the meat-packing industry. He also invented the process for making dried meal. The peculiar form of locomotive, cog-rail and brakes used on the railroad to the summit of Mount Washington, New Hampshire, were invented by him.

Barney Flannigan's Degradation.

BY CHARLES TRACY BRONSON.

A College Education Doesn't Prevent Him from Being Flimmed Out of Thirteen Hundred Bucks.

THIS a tale of degradation; no less. And to happen to Barney Flannigan, ten years section boss on the Santa Fe, and me all the time thinkin' I'd me eye-teeth cut so the gums didn't show.

Barney and I had gone to Columbia University from the Weehawken, New Jersey, yards of the West Shore to hunt up a "nevvy" of his who was studying in the School of Mines to get a diploma in hope of fooling some one into the belief he was a mining engineer when he migrated to the mines of Nevada. While waiting for the boy to come out of the assaying room we stood in the museum looking at the mineralogical display in one of the cases. Barney stopped as if some one had applied the "emergency," stiffened, sniffed, and snorted.

With the gnarled forefinger of a huge right hand he pointed to a gorgeous slab of stone and turned to me with disgust on his map.

Streaming sunlight through a window made it sparkle and scintillate like a diamond. But its chief glory was its dancing reds and yellows, greens and blues, colors vivid and varied that would pale the tints mixed by the slab artists in the paint-shop and make a rainbow wreck itself in sheer envy.

It bore a label with a lot of Latin or some other foreign language, and then in good, straight Irish-American you could read with:

From the Petrified Forests of Arizona.

Discovered on the Mogollon Plateau, May 17, 1909, by Mr. Bernard Flannigan, Section Master, A. T. & S. F. R. R.

Finest known specimen of a deciduous knot fossil of the Cretacean era.

Presented to the Museum by the Class of 1910, S. of M.

"It's proud of the distinction you should be of having your name on the label for all the world to read," says I, thinking to flatter Barney.

"And lave them know the fat-headed chump I was? And give me the grand laugh ivery time they see the dhirty bit of stone? 'Twas the 'ha! ha! boy' I thought I was whin the dude took it off me—the stung instead of the stinger. Let us leave the place before me temper gets the best o' me and I disgrace me nevvy by smashin' the case as tells the story of me degradation.

"Wurra, wurra! and me thinkin' meself the smart aleck of Arizona and the equal of a Broadway 'con' man. Sure, County Kerry would laugh itself to death if it knew how Barney Flannigan was the fall guy of a brass-ring peddlin' shark. Sorry's the day for me I was thinkin' meself smart enough—oh, what's the use. Lave us find a brewery and drown recollection."

It took a couple or three schooners to get Barney quieted so I dare ask him the why and wherefore of his rage at the sight of a bit of petrified tree, when tons of such lay scattered

about within gun-shot of his shack at Adamana in the petrified forests of Arizona.

"Listen, then, Jerry, 'n I'll tell ye the story of me degradation, on your solemn promise that none o' the byes shall iver hear it from yer lips," he mumbled.

"'Tis sealed as tight as the private expense account of a traveling freight-agent in competitive territory me lips will be," says I.

"'Twill be five years, come Easter," says Barney. "I started East to see me sister as married Engineer Hogan of the West Shore road and her bye, Patsy, that me an' Hogan prayed might be the real 'white hope.' Hogan started him right by getting him a job firin' a switcher in the coal yards; but Patsy'd had a taste of education and wanted to wear collars in the daytime, play football and read books at night instead o' perfectin' himself at the evening sessions in the roundhouse and the despatcher's office, drinkin' in the wurrds of wisdom as fall from the lips of the vet'rans of the service.

"And so he went to college to be a mining engineer instead of stickin' to a gentleman's trade as an engine-driver. And he, a broth of a bye, wid an eye like a fly's that sees all ways to wonce and an upper cut that's a gift from heaven.

"To make it worse, the lad chose Columbia for his education. Tiddlywinks and tennis was his most violent athaletic divarsion. 'Twas a sin to have him go there and spoil an amachoor champeen lightweight instead of some place where he would have been made into a star halfback to batter the life out of the bunch of huskies he'd buck into and come off the field wid glory for the name of Hogan.

"Remember the day we was layin' track bechune Adamana and Carrizo, when the Puerco was a real river with real water, and old Swartz, the division super had a bun on? 'Twas the day he fired us all 'cause the greasers had split too many spikes along the right-of-way and I was too busy to go back and clane 'em up. March 16 it was, 'n a crowd of those early-bird tourists blew into Adamana for a trip to the stun-yards — petrified forests they called 'em.

"Havin' nothin' better to do, and old man Campbell needin' a driver, I went along and heard the tenderfeet 'Oh!' and 'Ah!' and listen to the dry nurse conductor as had 'em in tow. They all had the collectin' bug, and picked up shiny hunks of the trees the size of marbles.

"A fine early spring day it was, and the sun shining like one of Fred Harvey's search-lights in the Grand Cañon on a dark night when supper's ready. Right in front of me the rays struck the bit of stone we see over at the college beyant and made it a lump of the greenest green ever I set me eyes on. 'Tis Patrick's Day, says I, and the stone is like the sun rays kissing a shamrock on the Shannon's edge. A bit sentimental I was, with only forty-seven dollars in my jeans and nary job in sight. So I picks up the rock—a good twenty pounds it was—and lugs it to camp in my wagon. So 'twas Patrick's Day, and not in May I found it, like the lyin' label says.

"Polishin' the stun I was in me spare time till the engineer of maintenance come along and for old time's sake gave me a pass to New York. 'Take along your hunk o' glass,' he says, referrin' to the stun beyant. 'There's a fool born every minute all over the world,' he continued. 'Yer might sell it to some swell for an emerald scarf-pin.' So I brought it along and got stuck for excess baggage east of Chicago.

"Hogan's bye was stuck on the stun, and polished it and ground it and talked about onyx and chalcedony, garnets and lapis-lazuli; and whin he finished his scrubbin' 'twas but half the size 'twas when I started. But it sure did glisten and shine and glitter in the sun. Then he took me over to a Fifth Avenue jeweler and showed me a piece

all polished and set up in a case like it was a great curiosity. 'It's worth a century, Uncle Barney,' says the kid, 'an' yours is better nor that one. It's got better color and brighter veins,' and a whole lot of that jargon.

"'Son,' I says to him, 'I may look green to you 'cause I wear a sombrero and have Texan heels on my boots, but the ground's covered with those things out along the Santa Fe, and the freight charges to get 'em to Kansas City would cut 'em down in value to the price o' pavin'-stuns. And that's just what they are worth.'

"'Thry it and see,' says he.

"The next day I brought it over. But the head of the pavin'-stun department wasn't in the Fifth Avenue jewelry-store that day, and no one else had the authority to buy jewels, a feller says, laughin' like. So I packs it up and starts out to get a glass o' beer, the stun being heavy.

"I was steppin' into Casey's over on Third Avenue when a dude with a spring halt in his speech and a goggle in one eye gave me the glad hand and a little of his hitch-and-kick conversashun about the stun I was showin'.

"'I'm a collector,' he allowed, 'and I'd be willing to buy it if the price is right.'

"Then the words of the engineer of maintenance come back to me. I says to meself, 'Here's one of them suckers. I'll sting him good and plenty!' So I says offhand like, just to kape up the conversation, 'What do you call the right price?'

"'About fifty dollars, me good man,' just like that, says he.

"'Put on another cipher,' says I, now sure I had him in the snare. 'Five hundred dollar's me price; take it or lave it.'

"'Twas almost a knock-out, for the glass fell out of his eye. Well, we kicked and switched all over the yard about the price, me pointin' out the emrulds and garnets, the lapis-lazuli and chalcedony that was in it, and he sayin' they was only mineral stains, until finally I agreed to let it go for two hundred in cash.

"I tagged over to the bank with him kaping a grip on his sleeve for fear he'd get away, and me eye out for the police, fearin' the'd pull me off and run me in. But I finally got the money and heard him tell the clerk to lock the stun in the safe-deposit vault.

"Then I knew I'd landed a sucker. So I skipped quick over to Ninth Avenue, and felt safe for I knew the guy couldn't find me to get his money back. Sure, if he did ask, I figgered 'twould do no good for I was frinds with O'Callahan, the cop on the beat.

"Chesty! I went over to the roundhouse, and, when Hogan come in from his run, blew the whole bunch and bragged about how I'd caught a New York sucker and got real money out of him for a cobble stun. For ten days I was a hero and tried to get a job as division engineer, I was so puffed up wid the pride o' me.

"Then Patsy come home one night from his examinations. His eyes was dancin' an' his mouth twichin until I says—knowin' he wanted speech about something, 'Out with it, me bhoy.

"'The college has got your block of stone, Uncle Barney,' he vociferates, 'and the perfessers says it's the most perfect specimen of a tree-knot ever in captivity. The class of 1910 bought it for fifteen hundred dollars, off a chap who said he got it from an old railroad geezer who didn't know its value and tried to sell it as a gold brick from a New Mexico diamond mine.'

"That's when I got mine. That goggle-eyed dude wid a hiccup in both his walk an' his talk had skinned me out of thirteen hundred dollars, and me wit' a nevvy in the science line who tried to put me wise.

"Hogan gave me the laugh, but kept it from the rest of the byes. Just the same the next day I hikes up to Albany on the New York Central and got to work with a section gang. 'Twas the pick and shovel for me once more till I could work off the shame."

HELP FOR MEN WHO HELP THEMSELVES—NUMBER 55.

HAMMERING BY AIR.

Light-Weight Machinery that Exerts a "Push" of 6,000 Tons to Compress a ¾-Inch Rivet.

BY H. M. LOME.

IT requires a "push" of 6,000 tons to compress a ¾-inch rivet. That calls for machinery that must be operated on the spot. It is not possible to "press home" rivets on the thirtieth or fortieth story of a sky-scraper in any other way.

The cost of erecting one of these buildings would be enormously increased, and the time expended on construction work would be vastly extended were it not that the "air-hammers" are made for both economy and speed.

It is not alone the riveter with its rapid-fire "clack-clack-clack!" that assists in the quick creation of a modern sky-towering office building. The compressed air rock and metal drills; the sand rammers; the stone-carvers and other machines, all of which have the hammer-like action, do their share in the work. Their handiness and adaptability constitute no small part of their value.

Armed with a thirteen-pound riveter and the light hose that goes with it, the riveter, his assistant and the "holder-on," can readily reach every nook, cranny, and corner of the growing structure. There is no let nor hindrance due to size, shape or weight of machinery. Neither is there annoying heat to battle.

It is no wonder, therefore, that in this, as in all other phases of compressed air work, there has been a phenomenal widening and application of its uses within the past few years.

The possibility of compressed air was not unknown to the ancients. Hero of Alexandria, a century before Christ, invented a method of opening and closing temple doors with its help. The device took advantage of the alternate rarefaction and condensation of air that was brought into contact with the surfaces of altar tops.

The genius of Otto von Geiericke, of Madgeberg, Germany, gave to the world the air-pump in 1654. About the same time an Italian inventor brought out a device for increasing the heat of furnaces by blowing compressed air into the fuel.

In 1800 the diving bell came into existence. A little later, compressed-air was used in connection with caisson work. Air-pumps and their adjuncts began to be developed commercially about 1850. But it is within the past decade that compressed air assumed both industrial and manufacturing importance.

All back numbers containing "Help for Men Who Help Themselves" for sale at this office.

Its place in this respect is hardly understood by the outsider. Within the period named there have been such radical changes and improvements made in compressed-air devices and machinery as may be compared with those that have taken place in the automobile world since the latter was first made known to the public.

Now Used in Seventy Industries.

Compressed air is in demand in some form of machinery or the other by at least seventy of the largest industries in this country and abroad. It now forms an integral part of the outfit of a railroad. Private individuals as well as the government use it for irrigating arid tracts of land. Uncle Sam, furthermore, asks its aid in charging his torpedoes and working his ammunition hoists aboard his battleships, and finds it valuabe in connection with sand blasts and pneumatic tubes. Many theaters handle their scenery by compressed air. Retail stores would be at a loss without the pneumatic cash carrier.

All devices that depend on air for their usefulness are supplied with atmospheric "life" by means of a compressed-air plant. This consists of a compressor—a metal cylinder having valves for the inlet of free air and a piston for drawing in and discharging it. The piston rod connects with a cross-head connecting-rod. There is also a crank-shaft and means of applying power. Steam, water power, electricity, and gas engines may be used for this purpose.

The air is forced from the compressor by suitable devices into a storage tank that is known as a receiver. There it accumulates pressure up to the desired point. This pressure may be from 1 pound to 3,000 pounds per square inch. The working pressure for hammering-tools varies from 50 to 100 pounds per square inch.

The air in the receiver is regulated by check valves and other devices used for controlling and regulating power. It may be stated here that an absolutely air-tight valve whether used in tools or machinery has yet to be found. As a result there is a waste of power that constitutes one of the few defects of the system as a whole. Inventors are hard at work trying to find some method that will prevent the elusive air from slipping through the minute crevices that surround the valves.

During the process of compression the air becomes considerably heated owing to the friction set up among its gaseous particles. Its temperature rises rapidly until 500 degrees above zero is not infrequently reached. For this reason the compressor has to be equipped with a water-jacket.

Hose Plays Important Part.

The compressed air is conducted to the tools by hose that varies in diameter, material and ply according to the nature of the work and the air pressure called for. The hose may be made of plain canvas, wrapped in canvas-linen, or wound with marline or wire.

In the case of coal-mine "punchers" the finest and heaviest hose must be used owing to the pressure that it must withstand and the strenuous work to which it is subjected.

With the jack-hammers, a special 7-ply make is called for, that embodies lightness and strength. The hose generally comes in short lengths of 30 or 40 feet each. These are coupled together in accordance with the requirements of the job and the constantly increasing distance between the tools and the air receiver.

One of the first things that a contractor does when planning the construction of a building in which compressed air is to play its part is to map out the position and direction of his air-pipe lines.

The tools that "hammer by air" include those that rivet, scale, calk, chip, and bead. Each of these may be somewhat modified in shape and design so as to fit the special work for which it is intended.

In reality the drills are hammers that deliver a twisting blow and have specially designed "steels" or heads. They include rock-drills of several types and a submarine-drill that is used for deepening navigable channels and removing reefs and ledges in the construction of docks and similar work.

Most of them are fitted with carriages, mounts or tripods, but the hand-hammer drills, as their name implies, can be carried and used by one man. They vary in weight from 20 to 48 pounds.

One of the most recent types of hand-hammer drills is fitted with what is known as the "butterfly" valve. Its success, in a very great measure, seems due to this fact. When we reach the subject of hammer valves we shall speak in detail of the "butterfly."

There are stone and marble "channelers" and rock excavators, most of them of heavy build, but all using a series of rapid, air-born blows. There are also punchers used in mining work, radial coal-cutters, radial axle-cutters, entry-cutters, under-cutters, coal-picks, pile-drivers, sand-rammers, tamping machines and stone-carving tools that are now operated by air.

The Uses of Ports and Valves.

Many of these tools and machines are fitted with the latest appliances and accessories. For instance, a certain drill has a water feed by means of which a combined stream of air and water is forced to the bottom of the drill hole through a hollow steel drill. By this plan there is an effectual removing of the cuttings so that the bit does not pack, the drilling speed is increased and the dust nuisance is greatly abated.

Speaking in general terms, there are two forms of mechanism that are used to permit compressed air to actuate the tools. In the first of these, which is applied to the lighter tools, valves play an important part. With the heavier apparatus, ports, wholly or partially, replace the valves. The object of both ports and valves is to alternately admit and discharge the compressed air that acts on a piston.

Thus the actuating mechanism of a 10-pound chipping-hammer includes a solid cup-shaped valve that moves in the same direction as the piston. The latter, on its return stroke, recesses with the valve, thus giving a longer stroke with a shorter cylinder than is possible with other types of similar devices. The positive action of the valve and the absence of "fluttering" are especially noticeable in this hammer.

The valve is seated in a valve-box of substantial design. As the piston cushions on live air, there is practically no vibration, so that the tool may be held steadily.

The piston itself is made of a solid piece of vanadium steel. The handle and controlling trigger-valve are so designed that the operator has complete control of the hammer. The inlet is so arranged that when the air is turned into the tool it forms a live-air spring under the inlet valve, forcing it to its seat and absolutely preventing the passage of air until the throttle is opened by a slight thumb pressure on the trigger for the operation of the tool. As wear occurs, this seating becomes more and more positive.

The shank of the throttle valve seats for nearly its entire length in a removable steel bushing, so that the liability of leakage at this point is very unlikely. The handle is a drop forging. It is screwed on and further secured by a substantial clamping bolt. These tools operate under an air-pressure of from 80 to 100 pounds per square inch and strike hard, positive and rapid blows.

"Live" Air in Drill Pistons.

In the instance of the drills the valves are mostly geared to the crank-shaft through the medium of the spindle-gear. Live air is admitted to the pistons alternately through valves, one set of pistons being under pressure while others are exhausting.

A system of ports acts in conjunction with the valves. Each valve controls two pistons which act on alternate strokes. The large valve areas and the short, straight ports that characterize the drills insure the quick admission of the air and produce rapid exhaust. This obviates a tendency to freeze. One form of riveting hammer has a valve-chamber independent of the piston chamber. This allows of the use of different lengths of pistons without danger of valve breakage.

There are but two parts to the valve movement in the valve and its guide. One large single port on the top of the cylinder is used in place of the usual large number of smaller ports, thus eliminating the liability of clogging. A strainer is located in the valve-chamber. It precludes the possibility of dirt or grit entering the working parts of the hammer.

The "butterfly" valve, to which reference has already been made, is a simple piece of steel oscillating on a central trunnion, actuated by the unbalancing of pressure on a pair of "wings" with which it is provided.

This form of valve is characterized by a very short lift and large free air-passages that impart a sharp, quick action to the piston, thereby increasing the number of blows struck per second and, incidentally, the speed of the drill or hammer to which it is attached. As a rule, the speed of any tool is governed by the length of piston stroke and air pressure.

The rotation of a drill steel is secured by a rifle-bar and racket that are located at the back end of the cylinder. They impart rotation to the piston which, in turn, gives rotation to the sleeve or chuck in which the steel is held. Of the air hammers named, none is more familiar to the general public than the riveter, for the reason that it calls attention to its industry by the noise it makes when busy. A riveting hammer will deliver about 2,000 blows per minute. The jar or recoil is light, this being due to its balance, a quality always aimed at in building a compressed-air tool. The green hand feels the jar a trifle at first, but does not notice it after a short time.

A 1-Inch Rivet Driven Home in 54 Seconds.

The number of rivets that can be driven by one of these hammers per hour varies somewhat with their size, but in an exhibition test, a 1-inch rivet has been driven home in 54 seconds. This is a pace that even the most expert workman could not maintain, however. From 35 to 40 per hour is considered satisfactory.

The riveter and its fellow hammers are built to fit every class of work. In weight they vary from the little 13½-pound machine that drives rivets of ½-inch diameter or less to the 25-pounder that is used in heavy structural, steam-pipe, boiler, or water-tight work, and which can handle rivets up to 1¼ inches in diameter.

The chipping and calking hammers are of even lighter build. They begin with the 6¼ pounders that are used for bath tubs, range boilers, and light work in general, and they attain their maximum weight of about 14 pounds when required to do heavy chipping and calking.

These hammers call for a pressure of 80 pounds of air to the square inch and the expenditure of from 10 to 14 cubic feet of free air per minute. That is to say, if the compressed air consumed per minute were allowed to expand to normal atmospheric volume, it would occupy the space named.

Riveters need from 16 to 25 cubic feet of compressed air per minute; drilling machines, 80 pounds pressure per square inch and 16 to 35 cubic feet; foundry rammers, 60 to 90 pounds pressure and 11 to 25 cubic feet; rock drills, 75 pounds pressure and 35 and upward cubic feet. Other forms of compressed machinery call for even higher pressure and larger volumes.

While the air hammers do not call for skilled labor, in order to be used with facility, a considerable amount of

training on the part of the workman is necessary. The life of a tool is longer, naturally, when handled by an expert.

Tools Are Affected by Altitude.

Altitude plays an important part in the efficiency of compressed-air tools. Thus, at an elevation of about 1,000 feet the loss of capacity is 3 per cent. At 5,000 feet, the loss is 16; at 10,000, it is 30; while at 15,000 it is 42 per cent.

The volumetric efficency of the compressor shows a decrease from 97 per cent at 1,000 feet to 58 per cent at 15,000 feet.

The air-hammer principle as applied to mining tools has worked a revolution in some classes of mines, especially coal mines. There are a number of such tools made especially for mining coal. Thus, the puncher is a comparatively small but powerful tool that is adaptable to hard or soft coal; thick or thin seams; high or low pressure. The radial coal cutter is a special machine adapted to solve four problems that confront mine owners; entry and heading-driving, shearing, cutting out dirt or clay bands, and undercutting and shearing in a pitching seam.

The entry cutter is a tool for driving entries in seams of coking coal. They are generally used in pairs, the machines being installed in parallel headings. In operation the coal is undercut and knocked down and loaded into the usual mine car by means of an automatic conveyer that is part of the cutter. The conveyer operates by means of compressed air and will pass up lump coal 12 inches in diameter.

The coal pick is a little tool used for picking out small seams of coal and dirt bands. Its weight is 17¾ pounds. When in use the noise that it makes reminds one of the clacking of a riveter. The rammers with their persistent "thud-thud!" are used pretty commonly in foundry and concrete work, and are in demand in connection with tamping earth round water mains, sewer pipes, and roadway work. They are numbered among the industrial necessities that have come to stay.

The stone carving tools are the lightest of the air hammers. The smallest size only scales 1 1-5 pounds. To a great extent they have replaced the hammer and chisel. It is claimed that they represent a saving in time of nearly 50 per cent.

Carvers are capable of handling a variety of work from the boldest cutting to the most delicate tracing. Companion tools that do bushing, are of the same design but heavier. All these tools are of the valveless type because of the lightness and the complete control secured.

The compressed-air pile-driver works on the principle of a rapid succession of comparatively light blows so that the piles are *pushed* rather than *driven in*, thus avoiding injury to the top of the piles.

It is claimed that when the compressed-air driver is used there is no buckling, bushing, splitting, binding or loss of alignment of the piles. Where guides for the piling are necessary they do not interfere with the operation of the machine. They may be made much lighter because of the lighter duty imposed on them by the driver.

A Sardine Upon the Waters.

BY E. A. MORPHY.

An Old Visiting Card Recalls a Peculiar Railroad Journey in the Land of the Mikado.

WHILE burrowing through an old trunk the other day, I came across a box full of visiting cards that had somehow accumulated on my hands in days aforetime and far over seas.

Many of them were of no account, in the broad sense of that term. Others recalled gallant gentlemen and brave episodes, or memories of great alurement in the realms of gastronomy or sport or some other of the allied arts and industries:

Vasili Verestchagin, artist, bearded like the pard—blown up with Admiral Makaroff off Port Arthur. Captain Barton, of the Guides, political officer of the Khyber during the Tirah show of 1897—killed playing polo at Mardan. Maboob Mir Jung, A. D. C. to the Nizam, warrior by trade and collector of rare books about Deccan — purveyor of the noblest curries I tasted in Hyderabad. Ibrahim, Sultan of Johore, purveyor of the most renowned curries on all this green footstool—the ruler of the Light Heart and the Steady Eye, who hunts his tigers in his own jungles, unescorted and afoot. Misaki, "director of the Bureau of Local Administration, Tokyo."

Name of a pipe? Who, and what, and how, was Mr. Misaka, director of that particular bureau in the Japanese capital?

Eighteen April tides have seen the cherry blooms mirrored, pink as the dawn, in the placid waters of the Sumida since last I trod the busy ways of Tokyo. Why have I treasured the visiting-card of the bureaucratic Mr. Misaka for close a score of years?

The problem was one which gave to think furiously, as they put it in the pleasant land of France; and it kept me thinking furiously—though in an unobtrusive way—until quite late in the afternoon, when a blue-eyed lady, with two plaited pigtails and a lisp, came and besought me to open the tin of sardines that awaited treatment at a firmer hand than that of her mama.

Then it all came back to me in the twinkling! Misaki and Japan and the railway train and the cataclysm and the sardines that were cast upon the waters and returned in less than half a day.

It was June in Japan. A telegram in a native morning newspaper—the *Jiji Shimpo,* of Tokyo — hinted cautiously at a possibly frightful catastrophe that was reported to have desolated the northeast coast of the main island of Japan, north of Sendai. The telegram stated that fears were entertained of a loss of life amounting to over a thousand, but official details were lacking.

The afternoon brought further tele-

grams confirming the first report, and even suggesting that the list of casualties was greater than originally surmised.

Now, in Japan, the tendency of officialdom and the press is to break bad news by degrees. In America the correspondents who herald the tidings of disaster pile on all the horror that the situation will bear at the first rattle out of the box. "A thousand deaths are feared" in cases where three figures cover all casualties.

In Japan it is quite the other way about. You may recall the recent death of the late Empress of Japan, who was a week in her coffin before etiquette would permit her to be more than seriously ill. Horrors are revealed in doles. The dog's tail is cut off an inch at a time to spare his feelings. The second reports from the northeast coast of Japan attributed the calamity to a tidal wave of unprecedented magnitude.

I took the afternoon train for Sendai so as to judge the extent of the disaster for myself.

It had been my fortune to have traveled far, and in many places, before I decided on that trip in quest of trouble in north Japan. So I guessed shrewdly as to what would be the best baggage.

Grave disaster had swept the land I sought. I would find it stripped of all things save sorrow and harrowing agony. Food would be scarce and dear, and of a kind I could not appreciate. The Japanese do not eat the things that Europeans are accustomed to. They like their fish raw, and they use rice instead of bread. My baggage, therefore, consisted of a waterproof coat and an umbrella—it was the rainy season (Nyubai)—a comb and a shirt.

I could get Japanese tooth-brushes as I went along, and I could always borrow a kimono at an inn or buy one for the equivalent of half a dollar.

That completed the wardrobe section. The rest was stores: One can-opener, one corkscrew, two tins of English crackers ("biscuits" as they are called), a dozen big tins of sardines, a few other odds and ends, and half a dozen bottles of the best French brandy. Brandy is no favorite tipple of mine, but, when one is going into a country sorely stressed, it is not unwise to carry good brandy.

All this palaver may seem foreign to a railway story, but the whole scheme of this affair hangs on the sardines and the biscuits. That is why they had to be dragged in.

On the platform at Yokohama were many people bent in the same direction as myself, but only one other European. He was an Englishman, ten years my senior, editor of an English paper in Yokohama, which was politically anti-Japanese in everything.

Naturally, we got into the same first-class compartment. He had been in Yokohama more years than I had been months in the country, and he had plenty of pointers to give me. He let me see that he was sorry for me, too—sorry for my inexperience and ineptitude. So he told me just what I ought to do and how to do it, and I let it go at that.

Sendai was a dozen hours away, and a railway compartment in Japan is no place to quarrel with the only other European one may see in a week.

At Tokyo the train loaded up. At Akabane station another European—Mr. Mortimer Menpes, the well-known artist—joined us. We were literally packed like herrings in a barrel.

Everybody was bound for the scene of disaster. Many of the native passengers—like ourselves—were in quest of details for newspapers. Tokyo had over half a hundred papers; many of them dailies. Other travelers were officials hurrying to alleviate distress or to report to the emperor. Still others were men and women who belonged to to the coast country north of Sendai, and were gathering homeward to certain mourning and desolation.

My friend, the editor, greatly resent-

ed the intrusion of so many Japanese on our privacy, but the law is the law, and right is right. In the face of the great emergency no amount of tipping could secure a private compartment. We stood and sat by turns, and broiled in the humid heat of a tropic June.

On Japanese railway-station platforms, itinerant *restaurateurs* sell little lunch boxes, each containing a meal of sorts, with chopsticks and everything else complete for those who can enjoy Japanese *chow*. So great was the press of traffic, however, as a result of the disaster, that these merchants had not sufficient boxes to go round when our train passed through the lunch-producing stations.

Then it was that I gave one of the most graceful exhibitions in "can-opening" ever witnessed on the Tokaido or any other railway in Japan. In face of, and despite the standing and perspiring crowd, I tore the lids from a tin of biscuits and a couple of tins of sardines, and proceeded to regale myself and my two English traveling companions.

On my right—squashed up very tight against my elbow—but doing his level best to shrivel into no space at all so as to give me room to tackle the sardines without oiling anybody was a quiet little man, with a thin, tired face, who had once or twice made polite but futile endeavors to win his way through the hungry mobs outside to a box of native lunch. He looked as if a sardine would be good for him.

"Pass up the box, Smith" (I'll call him Smith), said I to the editor. "Your friend the Daimio, here, wants to gnaw the bunions off a sardine."

Smith scowled and nudged me correctively.

"For Heaven's sake!" he growled under his breath. "You're not going to feed any of these blighted natives! You'll be cleared out in half an hour if you once start on that tack!"

I don't think I mentioned that Smith had pulled me up a bit about the extent of my kit allowance. Said I would disgrace myself and my country by its paucity. He had his white ties and evening suit, but he was distinctly shy on the grub department — one package of sandwiches and a flask.

"Well," said I, "I am not running a restaurant, but this little nipper on my right seems loose about the waistband, and he is probably going somewhere that will have no accommodations for a picnic. He might like one or two of these sardines. I know they are not his proper 'tucker.' But you don't find 'em bad yourself—do you?"

So the tin came back my way—likewise the cracker-box—and I wriggled around as best I could and addressed the little chap in my coolie brand of Japanese.

Would he some sardines and biscuits and beer tackle?

Would he not!

The little fellow turned to me, beaming with diplomatic mendacity.

"My dear sir," said he in very serviceable English, "I could not dream of to take your very honorable supplies. I—"

"Sir," I interrupted him, "please excuse me for using rotten Japanese to you. I did not know you understood English, but I saw you chasing the lunch merchants. The sardines are all right."

Well, he tackled as requested, and waded through half a box of sardines, and thanked me as he might have done had I rescued him from a den of lions. Thereafter I talked to him about the disaster. He told me that he believed it was worse than the published reports represented it to be, and volunteered the information that I would be as badly off for details in Sendai as I was in Yokohama.

Only a very few survivors were reported to have arrived there, and all the boats that might have taken us north from Sendai to the scenes of calamity had already been commandeered by the government for relief purposes. Furthermore, owing to the influx of people like ourselves and

our native fellow passengers from all over the country, we—as foreigners—would find it very difficult to secure hotel accommodations of any kind, and it was bad weather to sleep in the rain.

That was not very cheering.

The sun went down. The little man contrived to pop out at some wayside station, and reentered the car triumphant with an armful of lunch-boxes and bottles of Yebisu beer. I did my best to eat some of the boxed stuff. Smith did much better than I could, and I helped with some of the really excellent Japanese beer.

A little later and we were all taking it in turns to sleep as best we could—two hours each at a stretch—*on the floor.*

It was not until the year 1900 that sleeping-cars were introduced to Japan, and we would not have been able to sleep on the floor in that crowded car but for the blessed aptitude that the people of Japan have for squatting backward upon their heels instead of sitting with dangling legs like Western people and Chinese.

The train was due at Sendai somewhere in the small hours of the morning—two or three o'clock, I think it was—and I was doing my best to get rest enough on the car floor to last me for a week when I felt myself being jogged gently.

I did not think my two hours were up, but I sprang from the dust as smartly as I could, bumping my head horridly against the seat.

My friend, the Japanese, was bending over me. In the crowded car he was apparently the only man awake.

"Exuse me, sir," said he. "It is with sorrow I disturb your honored slumbers; but my alighting takes place at the next station, which is Sendai, and whither I have warned you not to go."

"But I must get out there, too!" I exclaimed. "My ticket is for Sendai. Where else on earth am I to go?"

The Japanese smiled politely.

"That is what has been troubling me," he replied reassuringly, "and, therefore, I have been sending telegrams of order and telegrams of inquisitiveness.

"You and your friends will proceed to Hanamaki, which is about eighty or ninety miles north of Sendai, and forty from the coast at Kamaishi, where the waves captured the greatest number of victims.

"It is a difficult journey by Tono and across two mountain ranges from Hanamaki to the coast; but I have telegraphed, and the way will be open to you. I have also telegraphed ahead to Sendai, and I assure you there is no way of proceeding thence to the great calamity."

I looked at the little man in the dim lamplight. There was no mistaking the sincerity of his tone or his expression. He knew—a fact of which the public was not yet aware—that nearly thirty thousand persons had perished in that awful cataclysm.

"But the tickets?" said I. "I must thank you ever so much for your courtesy to a stranger, but you know how punctilious your fellow countrymen are in such matters. If I go on to Hanamaki without a proper ticket they will delay me for hours."

"*Iye, dannizan!*" (But, no, my dear sir!") he assured me, and as he spoke he raised a beckoning hand to another little man at the other end of the carriage.

The little man came over and grinned respectfully. He was in a white-drill uniform. Bowing his head and rubbing his knees, and drawing in his breath in the most decorous series of hisses, he chorused a whole litany of "*Yoroshiis!*" ("All right!") to a string of hurried orders.

The train began to slow up.

"This guard will see that all is right with you and your friends," said my friend of the sardines, bowing politely. "But now I must say my *saiyonara* and express one hope that we may meet again under auspices of greater

felicity in times less befraught with horribles."

And so we said good-by. He left the train. I went on to try my luck at Hanamaki—a name, by the way, which may be literally translated to mean a bunch of flowers.

It was about nine o'clock in the morning when we reached that tiny wayside station in north Japan. It was a spot of bewitching beauty—old fashioned—centuries old.

On the station platform were assembled half a dozen venerable villagers, dressed in their *haori* and *momushki* —the cloak and trouserlike garments worn only on occasions of great state and ceremony.

The little guard hopped out into the sunshine and approached the elders with many grins and bows.

My translator stuck to him like a leech. The brown-skinned headman spoke hoarsely and in a dialect I could not even pretend to understand. I noticed that he and his companions all wore the *chummagi* (pig-tailed topknots), that were the fashion in the days of the Samurai and Old Japan.

"Is this the honorable one?" inquired the old fellow, pointing at myself, whom a slight but unusual deformity renders easily recognizable from description.

"This is the honorable one," replied the guard, bowing to me obsequiously and addressing the old gentlemen with an air of the utmost importance and solemnity.

The old gentlemen toddled forward, sucked in their breaths, and bowed, and I suddenly realized that I had somehow become the great panjandrum of Hanamaki.

It was the luckiest thing that could have happened to us, though the editor did not seem to appreciate the arrangement at its full worth.

The episode of Hanamaki was repeated everywhere we stopped. It took us two days to win our way across the mountains to the coast. They were long and strenuous days. The weather was bad, the roads were rough, and wearisome. The ponies and their grooms in the high passes and the rickshaw men in the plains were sore set to meet our demand for speed. People turned out in crowds to look at us. They had never seen white men before.

But all the way we were met by the headmen and were charged only the set price for everything. Wholly contrary to the laws of custom and precedent, not only was no effort made to victimize the foreigner with overcharges, but the people absolutely refused to allow us to overpay anybody. It was with the utmost difficulty we could even get tips accepted.

And all we could learn about the business was that it was the order of the Honorable Misaki-san.

When eventually we reached the top of the bluff that looks down on the town of Kamaishi we saw a swath of desolation unspeakable. What was now gray, flat ruin had been a busy town five days before. Here and there a schooner was perched in some treetops. Everywhere black ravens cawed their hoarse delight as they pecked at the festering dead.

A man came tottering up the path, weak with hunger and drunk with horror.

I turned to the translator.

"Speak to him, Tanaka-san," said I, "and ask him where we can go."

As Tanaka advanced with an air of polite importance he pulled out his big red-leather pocketbook, so as to impress the wretched yokel with the idea that he was a high official.

While he was opening the book to dazzle the native a solitary card fell out.

Tanaka turned pallid with fright as he stooped to pick it up. Ignoring the native, he ran back to me, holding out the tiny white pasteboard and gasping convulsive apologies.

"I had forgotten it utterly, sir!" he blurted. "The card of Mr. Misaki. He gave it to me for you while you

slept in the train. Thereafter he awakened you and held honorable converse, and, therefore, I forgot. Behold, sir, what I have not before seen. There is an honorable inscription on the back."

The stricken native blinked at us dumbly while I deciphered the crabbed characters that were penciled on the back of the card. I can read them more plainly to-day:

HONORABLE GENTLEMAN:

Accept my compliments and gratitudes. How can I write my thankings for your kindness of luxuriant sardines?

I handed the card to the translator, so as to convince him that he had wrought no harm by his oversight.

"You can tell Mr. Misaki when next you see him, Tanaka-san," said I, "that he has solved his conundrum with acts that are better than written words."

Tanaka was a man of quick wit and extreme foreign study. He had read all the great authorities, and he quoted them occasionally in strange and startling ways. He smiled a superior smile as he again handed the card to me.

"Your own honorable and sainted Eccresiastes has written," he began sententiously—and with true Japanese inability to pronounce the letter "l"—"that if you cast your sardine upon the waters it will swim back after many days. Only two days have elapsed since the honorable Mr. Misaki—"

"Oh, shut up, Tanaka-san!" said I.

Tanaka-san shut up.

The Sunny Side of the Track

AFTER a piteous tale, the kindly lady said to the tramp:

"Well, I'll feed you; but, mercy me, haven't you any home ties?"

"Not one but those on the railroad track," the bo returned lugubriously.

THE news-butcher had been in the habit of supplying a commuter with a paper every evening for several months. One evening the commuter, a man of very correct business habits, found that he hadn't a penny in change.

"That's all right," said the boy. "Give it to me to-morrow night."

"But I may die over night," the commuter objected.

"Never mind," the boy returned, "the loss won't be very great."

The commuter is still puzzled as to just what he meant.—*The Railway Conductor.*

THE town council was very much opposed to fast trains making time through the village. They complained to the railroad, but were informed that it was necessary in order to hold to schedules. An indignation meeting was called, though one member objected to such a course on the ground that it showed lack of progress. After the council had argued itself out of breath without reaching a practical solution, the dissenting member yawned widely and spoke up.

"You might get your heads together and block it that way," he suggested.

He refused to explain what he meant.

AS the conductor was punching tickets, a man said to him, with a nasty sneer:

"You have a lot of wrecks on this road, don't you?"

"Oh, no," said the conductor. "You're the first I've seen for some time."

SHE came into the telegraph office and rapped on the counter. The clerk remembered that she had been there about ten minutes before as he came forward to meet her. He wondered what she wanted this time.

"Oh," she said, "let me have that telegram I wrote just now. I forgot something very important. I wanted to underscore 'perfectly lovely' in acknowledging

the receipt of that bracelet. Will it cost anything extra?"

"No, ma'am," said the accommodating clerk, as he handed her the message.

The young woman drew two heavy lines beneath the words, and said: "It's awfully good of you to let me do that. It will please Arthur ever so much."

"Don't mention it," said the clerk. "If you would like it I will put a few drops of violet extract on the telegram at the same rates."

"Oh, thank you, sir! You don't know how much I would appreciate it. I'm going to send all my telegrams through this office. You are so obliging."

And the smile she gave him would have done any one good, with the possible exception of Arthur.—*The Pathfinder.*

THEY were remodeling the village station. The carpenter, while driving a nail, struck his thumb a blow that brought a rather lurid exclamation. Pat, who was carrying the hod, smiled.

"Don't yez know how to droive a nail?" he asked.

"No, you chump," the carpenter snapped. "Do you?"

"Sure! Hould the hammer with both hands and thin ye won't be bangin' yer fingers."

THE self-made man stalked into the office of a great railroad president with whom he had an appointment.

"You probably don't remember me," he began, "but twenty years ago, when I was a poor messenger boy, you gave me a message to carry—"

"Yes, yes!" cried the railroad president. "Where's the answer?"

A SCOTCHMAN, wishing to know his fate at once, telegraphed a proposal of marriage to the lady of his choice. After spending the entire day at the telegraph-office he was finally rewarded late in the evening by an affirmative answer.

"If I were you," suggested the operator, when he delivered the message, "I'd think twice before I'd marry a girl that kept me waiting all day for my answer."

"Na, na," retorted the Scot. "The lass who waits for the night rates is the lass for me."—*Railway Conductor.*

THE railway train had just put in a tango playing machine.

"Are you running on eastern or central time?" asked a passenger.

"Neither," replied the conductor, wearily; "rag time."—Washington *Star.*

"IT'S the iligant job me man has now, Mrs. McCune. 'Tis a night watchman he is."

"An' why do ye like that better than the other, Mrs. O'Hara?"

"Why, sure, he sleeps all day, and that saves his board; and he works all night, and that saves his lodging."

ANGRY passenger on French railroad: "Why didn't my train stop? I must not ride beyond my station. It's outrageous!"

Trainman, very suavely: "I am deeply grieved, madam; but did you not hear that the engineer and station-agent had quarreled?"—New York *Sun.*

SAM, in the diner, was a silent, morose cook; but he would invariably hum a merry little ditty when boiling eggs. Some one asked him why, one day.

"I allus sing when I boils aigs," Sam admitted.

"But why?" the other persisted.

"Just 'cause one verse means soft, and two verses am sure hard boiled."

Two New Fiction Writers Make Their Literary Debut in the

RAILROAD MAN'S MAGAZINE for November

George T. Pardy and Warren Kraley

Mr. Pardy is blessed with the gift of humor. His story, "Side-Tracked by a Sea Dog," glides along the rails of laughter like a fast express on a down grade.

Mr. Kraley writes of the sterner side of the big game. His story, "The D. F. and Q. Robbery," proves what the brave men of the express service do when held up by bandits.

BOTH OF OUR NEW WRITERS HAVE SEEN SERVICE ON THE RAILROADS OF AMERICA

THE MEN WHO BUILD ANYTHING

No Task Too Tremendous for the Skilful and Daring Contractors Who Change the Face of the Earth.

QUESTION OF COST IS ONLY OBSTACLE.

Small Companies of a Few Years Ago Are Being Supplanted by Huge Enterprises Prepared to Construct Railroads, Bridges, Dams, Canals, Tunnels, and Other Facilities Necessary to the Advance of Civilization in Any Part of the World.

BY THADDEUS S. DAYTON.

OULD you move the great pyramid of Cheops from Egypt to Chicago, not stone by stone, but in bulk?" I asked the head of the largest contracting firm in the world.

"Certainly," he responded without hesitation. "If you wished the job done that way, and had the money to pay for it, we would guarantee to deliver the pyramid of Cheops to you anywhere on earth within a certain time with every stone and layer of mortar intact. There are twenty other men right here in New York who could do the same thing."

"Could you float the Brooklyn Bridge entire, stone piers and all, down the harbor and set it up across the Narrows?"

"Yes, or at Gibraltar or at Singapore. It's simply a question of money. Assure us of enough money to cover the cost and to give us a fair profit and we'll do anything in an engineering and contracting way. There is nothing in transportation by land or by sea; in the tearing down or building up of the earth or the structures on it that is impossible to an engineering contractor.

"In every work certain well-known mechanical principles are involved. The bigger the job the more these basic principles are magnified. Moving the pyramid of Cheops, for instance, would be like moving a single block of stone, but one of tremendous size. More force would be required, and a tremendously wide, solid rock would have to be built over the land. Deep, broad channels would have to be dredged to the open sea to float the stupendous raft that would carry it across the ocean.

"But the task would be less difficult than that of the Egyptian contractor who piled up the great mass without

machinery. How he did that is a mystery.

"No big contracting firm will refuse to consider a job simply because nothing like it ever has been done before. You could make over the entire earth if you had the money to hire the men and get the necessary machinery.

"The most curious proposal that ever came to us was brought to me some years ago in London. A well-dressed, middle-aged man, who, so far as his appearance went, might have been a banker, a scientist, or a business man, called on me one day and asked if we built caissons. I told him we did, and he inquired if there was any limit to their size. I replied that there was no limit.

"A caisson, you know, is a good deal like a huge tin-can with a sharp-cutting edge that you force down into the earth. There are many kinds of caissons, but that is the principle of the thing.

"The gentleman unrolled a lot of blue-prints. I glanced at the scale to which they were drawn and then at the figures showing the dimensions. It looked like a tremendous job. There were some profiles of geologic strata also. Before I could ask a question he plunged into the heart of the matter.

"Briefly, he announced that from borings he had had made at a point outside of London he had discovered that after the first subterranean mile the crust of the earth was softer there than it was anywhere else. What he wanted us to do was to construct and sink an enormous caisson at that place. He had figured out the scale of weights and the dimensions with great accuracy of detail. I looked them over and grew more and more amazed.

"'What do you want me to do with this?' I asked, not comprehending what it was all about.

Wanted Earth's Full Treasure.

"'Simply want you to construct this caisson and sink it through the center of the earth,' he replied calmly. 'You will note that I have provided for a sufficient thickness of wall to overcome the heat of the mass of fire that probably will be encountered about 3,500 miles down. I wish the caisson to emerge at Kingyin, on the Gulf of Martaban, seven and one-half miles from Rangoon, in Burma. It might expedite matters if you started another shaft and caisson from there. You needn't worry about the expense, for I expect to have all the treasures of the earth at my disposal as soon as you penetrate to those depths.'

"I did not realize until he had gone thus far that the man was stark, staring mad. It was with real regret that I saw him roll up his plans and go out to seek the few hundred millions of money that I told him would be necessary before we could start the work with a prospect of carrying it through—to the other side of the earth."

The business of contracting is one of the greatest activities of man. Few persons realize how big it is, or how ancient. The first contractor lived in the dawn of time. His advent marked the beginning of man's struggle with nature.

Contracting Now a Science.

To-day contracting is a science that has either borrowed from or absorbed many other sciences. It concerns itself with everything from the building of a few yards of sidewalk to the construction of a transcontinental railway; from tunnels far beneath the earth's surface to structures that touch the clouds; from changing the course of rivers to holding back the sea.

The science of contracting, which embraces engineering, has advanced more in the last ten or fifteen years than it did in all the nineteenth century. The world has grown richer very rapidly, and has asked for an increasing number of things—facilities for travel, bigger buildings, greater comforts and more protection against elemental forces. This demand has been world-wide.

Therefore great contracting firms have grown up, employing thousands of men in every corner of the globe where there is work to be done. These men are of every class, from the laborer up to the engineer and executive of Napoleonic genius who is paid a princely salary.

The largest firm of contractors in the world is an American one. It has its main offices in New York, and its branches of representatives in every great city of the globe. It never has less than 20,000 men in its employ, and sometimes two or three times that many. It has been in existence nearly seventy years, and is now conducted by the two sons of its founder, James C. and Alexander Stewart.

Doesn't Rely on Guesses.

The successful contractor of to-day never guesses about anything. His business is conducted on a scientific basis. Each job is a separate problem. No two are alike in their details. Each has to be studied with the utmost care before an estimate is made or a bid is tendered. There is no legitimate business that can be started with so little money, if one has good credit. There is no business in which so much money can be made or lost in a short time.

It also offers more variety than any other business, because the work of the contractor must be done in every clime. If his interests are extensive he may be doing a big job on the snow-bound steppes of Siberia, another in the heart of equatorial Africa, a third in Australia, and a fourth in New York City at the same time. While these are progressing he must be seeking and starting new ones.

The merchant or manufacturer, no matter how big the concern, does not jump from one thing to another. His success lies in doing the same thing over and over again on a constantly increasing scale. The merchant buys his goods at one price and sells them at another, thus reaping his profit. The cost of each article can be calculated exactly in advance, and each article carries its share of the fixed charges. If the merchant finds that he is losing money he can close out his business almost immediately.

Must Stick, Win or Lose.

The contractor, once having entered upon an enterprise, must see it through. In the first place he puts up a certified check of from five to ten per cent of the gross amount when he makes his bid. If he is awarded the contract he must give a bond for its faithful performance. He must stick, win, lose, or draw. He must continually tackle undertakings that are new to him.

It follows that the successful contractor must be a man of both nerve and knowledge. But, curiously enough, a man may have very little technical knowledge and be a very successful contractor. He may not know a clam-shell-bucket from a dump-car, but he may amass great wealth, provided he is a good executive and knows how to hire and handle men.

The old type of contractor—the man who could swear lustily—is almost a thing of the past. The new type has his main office in a big city like New York or Chicago, and there he spends most of his time, keeping in touch with every job by long distance telephone, telegraph, and world-girdling cables.

He is like the commander of a great army. He may not see with his own eyes what his troops are doing, but he knows and directs every move. He has his generals of division and brigades, his commanders of regiments and companies. These he has trained, and he relies on them.

Handling an Emergency.

Some of his chief aids are in the home office; others are in branch offices. Every one of them must be ready to start for any place on earth at any time at a moment's notice. The occasion for the hurried journey may be a new contract, or it may be a flood or a

cave-in, or any of a thousand different contingencies.

No contractor knows how much he is going to make or lose on a job until it is finished and he gets the last payment. When the crisis is an important one the "big boss" himself may catch the first steamer or train with hardly time to telephone his family that he is going.

It is executive ability that the successful contractor needs. Technical skill of the highest order can be hired. The average man of technical ability—no matter how talented—is not usually a first-class executive. He cannot handle men or material, though he may be a genius at planning on paper.

Contractors say that their best timber comes from farms and the small towns. It is composed of boys and young men who have had a common-school education. They are adaptable, willing to work hard and intelligently, and to obey orders, no matter whether it is necessary to jump into a ditch and show the men how to handle their shovels, or to boss a gang of bricklayers or steel-riveters.

How Men Rise from Ranks.

A young man of fair education may start in the office or in the open. It depends on how the boss sizes him up. If he starts in the office, he will spend perhaps a year obtaining a theoretical knowledge of the business. Then he will be sent out on one contract after another and fill such places as time-keeper, straw-boss, foreman, and so on. If he makes good he will rise rapidly, become an assistant superintendent, superintendent, manager, and a partner.

He may start in business. If he is apt and industrious he will learn how to buy machinery and teams, lumber, sand, steel, cement, and gravel; to build camps and warehouses, to hire men of all classes, and to see that each does his work. These items and many more enter into the cost of moving each cubic yard of earth or of any other unit by which the contractor is paid.

Time is the essence of a contract. Nearly a dozen years ago the Westinghouse Electric Company decided to construct and equip at Manchester, England, the largest and finest industrial establishment in the world. It was to cost more than $7,000,000. The lowest bidders were an English firm, but it was found that after some months had passed no material progress in the work had been made.

The Westinghouse people were in haste. They went to the foremost English builders and asked them how soon they could finish the job. They said that if the buildings were desired in a very great hurry they could possibly, by rare good management and working overtime, have them finished within five years.

Americans Beat 'Em to It.

The Westinghouse interests appealed to the Stewarts, whose main office was then in St. Louis, and whose business, while very large, was not nearly so great as it is now. The Stewarts remarked that five years wasn't anywhere near soon enough, unless Westinghouse desired to provide the public of Manchester with a perpetual lesson in the art of leisurely bricklaying and building in general.

The English builders, when they heard this, were amazed and indignant. They proved by their figures that the plant could not by any chance be built in less than five years, and that six would really be fast work.

But while they were demonstrating this theoretically the St. Louis concern was given the contract. British workmen, under the direction of American foremen and superintendents and one of the members of the firm, completed the job. In less than twelve months the work was entirely finished, and the installation of machinery and equipment was well under way.

In addition to this work, which entailed the building of more than

twenty-seven miles of standard-gage track to handle the immense quantities of materials, these American contractors entirely rebuilt the main outfall sewer of the city of Manchester. This passed directly under the principal group of Westinghouse buildings and cost more than $500,000.

Stewart Sped Up the Bricks.

This historic incident has served as a text for publicists as well as contractors all over the world ever since it occurred. The secret of the speed with which the work was finished, it is said, lay in Stewart's insistence that the fastest bricklayer—not the slowest—should set the pace for the others.

It was a novel idea; an attack, moreover, on an ancient tenet of the British trades unions. But Stewart carried his point. He had each dazed Briton laying an average of 1,800 bricks a day against the old average of 450. And what is more remarkable, he did it with union labor and without a strike.

Theoretically, the new scientific management would be an excellent thing for the contractors, but practically none of them has been able to utilize many of its principles. There are several reasons for this. The bulk of the contractor's forces is composed of unskilled labor. To manage it successfully it must be studied in the original. Each nationality must be handled in a different way.

Labor a Big Problem.

In the South it is the negro who is the pick-and-shovel man. In the Eastern States the Italian and Greek, with some Russians and Poles, make up the rank and file. In the central and middle West the army is composed of Huns, Slavs, Poles, and Bohemians; in the Northwest the Scandinavian races; on the Pacific coast the Japanese, and in the Southwest the Mexican peon.

One of the first things that an experienced contractor will tell you about the labor problem is that there are certain races that will not mix with certain other races. Sicilians, for instance, will not work with men from any other part of Italy, although alone they do well. In a big camp each nationality has to have the boundaries of its quarters clearly defined, and there can be little or no mixing.

If there is, an explosion is sure to follow. It takes sympathetic, skilful management. The contractor knows this, and picks out his foremen accordingly. If there is any trouble or friction he knows that it is probably the foreman's fault. The superintendent shifts these captains until the vast human machine is working in harmony.

Power Must Be Conserved.

The next thing is saving manpower. Into this the human element enters almost as largely as the mechanical. The skilful boss is the one who can lay out work so that the cost-units are close to bed-rock. He must not be afraid to hire the best experts and pay them top prices. He must see that time is not lost, that the materials are continually flowing in as fast as they are needed, or that waste is disposed of quickly and economically.

The men who can do these things cannot tell you how they do it. When the men realize that their boss knows his job and theirs, and that he is "square," there is no trouble.

It is in the matter of contracting machinery that inventive science and scientific management have aided the contractor most. The cost of machinery on a big job is usually a tremendous item, one that runs into tens and hundreds of thousands of dollars.

A certain part of this cost is figured into the estimate, but this depends on how long the work will last, how much of the machinery will be worn out so that it will not be worth moving to the next job, how much it will cost to take it down, transport it and set it up again, and so on. Some kinds of machinery will have to be renewed two

or three times; others will last for several years. All this is taken into account.

Climate Closely Studied.

The variations of temperature throughout the year are studied. If the work is in a cold climate the practise now is to operate everything by compressed air. A central plant is established and as many compressors as necessary are installed. On the Catskill Aqueduct, that is to bring the mountain waters in a flood to New York City, one of the largest air-compressing plants in the world was set up.

As a motive-power, especially in winter, compressed air is far better than steam. It can be piped for long distances without much loss of power. It will not freeze, and there is no bother about the bursting of cylinders. Almost every class of machinery can be operated by it.

Every year some improvement is made in the rock drill. The latest model is one that is mounted on a car. It is very heavy and has a "steel" thirty feet long. This enables a single hole of that depth to be drilled without withdrawing the steel. A jet of water that is forced into the hole clears away the powdered rock. A drill of this sort, it is said, will do five times the work of one of the ordinary type.

Child Could Dump 100 Cars.

A few years ago the biggest dump-car would not hold more than three cubic yards, and one or two men were necessary to empty it. Later its capacity was increased to five cubic yards, and then six, the dumping of which required still more muscle. Now the up-to-date contractor has cars of thirty cubic yards capacity, or about twelve wagon loads for a team of horses.

One man can dump a train of them half a mile long. Connected with the engine is a long air-cylinder. It has more than four times the power of the ordinary air-brake apparatus used on the heaviest trains. A child can pull the lever that dumps a hundred cars simultaneously. An army of men with shovels could not do as much in a day.

In the matter of steam-shovels and dredges other great mechanical wonders have been wrought. In use on the Barge Canal that is being built in New York State there are a score of giant dredges and steam-shovels that exercise a tractive pull of more than three hundred tons on the huge bucket that scoops up the earth and rock. So powerful are these mightiest of engines that nothing but the hardest granite defies them. Their "dippers" bite into solid sandstone or traprock as easily as you would thrust a teaspoon into cheese.

Digger Could Lift a Mallet.

A passenger locomotive of the Pacific type has a total weight of about one hundred and thirty tons. The Santa Fe's huge Mallet compounds, the largest locomotives in the world, weigh about three hundred tons. One of these big steam-shovels could pull a big Mallet out of the ditch without any difficulty. It could swing a Mikado or a Pacific around without strain. No wonder the contracting firm that owns these all-powerful machines has bestowed fanciful names upon them. One is called the "Hurricane," another the "Tornado," a third the "Cyclone," a fourth the "Tempest," and so on—all symbols of the most irresistible forces of the air.

Even the hand shovel has been improved. Shoveling by hand is about the last thing on earth that the average man would think could be improved scientifically. But the patient experiments of the experts in scientific management have helped the contractor so that he now saves many thousands of dollars a year for the shovel work that must be done by hand.

The first thing that was ascertained was the "shovel load" at which a

first-class shoveler could do his biggest day's work. Months of experimenting with hundreds of men on all classes of materials have proved that a first-class man can do the most work with a shovel load of twenty-one pounds. That means that if the material is very heavy the scoop of the shovel must be small, and if it is light and bulky it must be large, so that it shall hold exactly twenty-one pounds of earth or rock or iron ore or grain or whatever the load is.

Races Want Different Shovels.

Each class of shovel varies slightly in its pattern from the next nearest class, according to the material handled. The handle and the scoop are "balanced" scientifically. Therefore the modern contractor, when placing his shovel orders, specifies exactly the kind of material in which each lot of shovels is to be used.

Not only that, but one firm of contractors has been experimenting with shovels with various races. They have found that the twenty-one-pound load shovel, while quite satisfactory in America, will not do for India, largely because it isn't balanced right. On the other hand the Malay, who is bigger and stronger than the Hindu, is perfectly suited with it. The Japanese, too, requires something quite different in shovels from the Hindu.

Such things as these show how the great contractor has adapted the principles of scientific management to his business. He has had the hard sense to recognize that no system will automatically run his work efficiently, but that every system and appliance has to be humanized until it becomes practically a living thing.

Other things besides business enter into contracting. When the hurricane and tidal wave overwhelmed Galveston in September, 1900, James C. Stewart was in St. Louis. His firm had been doing much work in the South, and he had an army of men within a radius of a few hundred miles of the stricken city. As soon as he heard of the disaster he gave orders to mobilize the men and move to Galveston at once with all machines. Then he took the first train available.

Saved Relief for Galveston.

When he reached Galveston he found, as he expected, that the great tragedy had overwhelmed every one, mentally as well as physically. He sought those in authority.

"You look after cleaning up the city and its restoration to a sanitary condition," he said. "I will attend to putting the wharfs and harbor into shape so that ships can come in with supplies and workmen. I have already given the necessary orders. Men and material are on the way. It is a job I know about. The pay? Never mind about that. I'll take care of the cost."

So rapidly and efficiently did this master contractor work that not a ship was turned away from Galveston. Long before adequate communication by land could be established a flood of food and materials flowed to the city as fast as steamers from the nearest ports could carry them.

Toiling in Old Rome.

There is romance in contracting. Recently the Stewarts were asked by the Italian government to submit an estimate for dredging the River Tiber from above Rome to its mouth. As a waterway the Tiber is not important, but in the thousands of years that have elapsed since Romulus and Remus built the first walls of Rome, a vast treasure of gold and jewels has been cast into its waters. In ages past this wealth was a votive offering to the god of the river.

Then came the centuries through which Rome fought for the supremacy of the world, the attacks on the city by Goth and Vandal, Carthaginian and Hun, and its final overthrow. Each great crisis saw the Tiber's waters enriched with the most precious things

thrown there to cheat the invader. It is to recover these priceless treasures from the grasp of Father Tiber that an American contractor is to set up his dredges in the Eternal City.

The contractor is an important factor in regulating the world's food supply. One of the things that the Stewarts have specialized in is the designing and building of chains of huge grain elevators. Governments come to them for plans and estimates.

Recently, at the behest of the Czar, they were arranging a vast system of grain elevators for the Russian Empire west of the Urals. On a great map in their office in New York the boundaries of the wheat-growing regions of Russia are carefully indicated. The map is dotted thickly with circles of varying size showing the number of bushels of wheat raised in each locality.

Quadrupled Russia's Wheat Crop.

Twenty years ago the Russian crop of wheat was about 200,000,000 bushels. To-day it is about four times that much, or nearly equal to all that is produced in North America. There are not more than half a dozen grain elevators in Russia.

For the most part the Russians store their wheat in the most primitive fashion. First they fill the sacks. These they pile up in walls forty or fifty feet high around a hollow rectangle three or four hundred feet square. On the frozen earth inside they dump the loose grain. When any is to be shipped they make a breach in the wall and cart it away. It is, perhaps, the most wasteful way of storing grain on a large scale.

To obviate this and arrange a system of distribution that shall make famine a thing of the past, a great number of huge elevators are to be built. They are to be located at strategic points, both as regards economic needs and in respect to quick transportation. Even Russia is looking forward to the opening of the Panama Canal and the remapping of the trade routes of the world.

Built Canada's Huge Elevators.

In Canada the Stewarts have been building elevators for the Canadian government for a number of years. They are now at work on about $10,000,000 worth of these structures. These huge edifices for the storage of the Dominion's annual surplus of about 125,000,000 bushels of wheat are an enterprise of the government. It foresees that the tide of grain is going to move in a different direction as soon as the Panama Canal is opened. It is locating these elevators accordingly. The Canadian farmer can store his grain in them at a reasonable rate.

It is a fixed policy in Canada that rates between Montreal and Canadian points shall be lower than the lowest rates between these Canadian points and American ports. Therefore the planning of this huge elevator system is a weighty task.

There has been a great advance in the science of elevator construction and of grain handling in general in the last ten years. Few large elevators are now built of wood or steel. The modern elevator is constructed of concrete. Through the absorption from the air of carbon dioxygen in chemical combination, concrete grows constantly stronger and harder. Moreover, it is absolutely fireproof.

One of the largest, if not the largest single contracts ever allotted to one firm of contractors is the rebuilding of the harbor of Toronto, which the Stewarts have just begun. One of the objects of the improvement, which will cost about $19,000,000 in all, is to make Toronto a port for deep-sea ships. To accomplish this a channel thirty-five feet deep will be dredged in the St. Lawrence River, and some troublesome rapids will be eliminated. The water-front will be beautified. It is one of the most important projects in contracting and engineering that ever has been undertaken.

"Society Camp" on a Joy-Ride.

BY A. J. ESS,

Author of "A Bluff Game at the Border."

Forty Thousand Yards of Earth Are Slighted to Entertain the Girls, Widow Jones, and "Super" Hayden.

CHICAGO was some stamping ground for "dirt men" last winter. I met more of the old boys last month, hanging round waiting for jobs to open up, than I had seen in the last five years. Never saw such a mess of shovel runners, cranemen, walkers, and dumpmen in one place before. Work was scarce. Seemed as if every job in the country closed up at once and everybody hit it right for "Chi."

But we had some pretty good times telling of different experiences. One day we were all sitting in a cozy corner, and Bud Allen had just finished telling of the stunt he and Mack pulled off in Mexico. Baldy Davis, who ran shovel with me down in Panama, brought back a new line of stuff from Culebra, and Hen Price, just back from B. C., told us all about the "rip-rap" work on the Fraser River.

"What's this we heard about Society Camp? What kind of an outfit was that?" Baldy asked me, and the bunch laughed. It was up to me to shoot a story at 'em, and Society Camp was pretty popular talk.

"If there is anything that can turn a healthy job into a jippo quicker than the society bug, you got to show me."

The superintendent spoke them words, and the look on his face showed that he was sure angry.

"Sure, matrimony!" butted in the timekeeper, a two weeks' victim.

"Matrimony! What are the first stages of matrimony? Society!" yells the super. "A bunch of rough-necks, who don't know an oyster fork from a napkin ring, get the idea that they were originally intended to decorate front porches and soak up ten o'clock percolater coffee and ginger snaps. Two months ago this job was cream; we moved dirt and got estimates to be proud of, averaging forty thousand yards a month!

"Now, last month, we get twenty-eight thousand. Why? Because every man from the shovel to the dump is patting himself on the back for being such an Adonis.

"Well, you ain't! You beef-fed, bean-eating railroad builders must reckon that this four-hundred stuff is ended. We get forty thousand yards this month or this job will be short half a dozen Beau Brummels.

"And the next one of you galoots that pours sweet talk into that telephone to some hare-brained female is going to get canned. That goes; understand!"

By this time I thought the super was about blowed up, but he came back stronger than ever.

"Timekeepers are supposed to keep time. One of 'em is kicking clover half the time and the other one sneaks off during the day. Where'd you go this afternoon?" he asks one of 'em.

"Picking wild flowers with the

Sheldon girls," answers the timekeeper real meek.

"Picking wild flowers! Picking wild flowers! Did you hear that!" yells the super. "Well, you look like one of those botany simps. Next time you feel like picking, you can pick up your junk and hit the trail. First thing I know you will be getting married, too! This ain't a matrimonial bureau! We work here!"

Quite a speech to make, but he was some sore. What he said was true, too; we were all society crazy. Me an' Jim Bettinger were out with our girls the night before, and the night before that we went to a home-talent lady minstrel show.

The two Wabash engineers were out with young ladies, and the super caught the timekeeper sneaking off the job in the afternoon. The other number-grabber got married to a farmer's daughter; he was so busy checking milk tickets that he almost forgot to come around and check time.

Funny thing about timekeepers, they always marry. Never heard of a job that lasted over six months that some fool number-grabber didn't get grabbed, did you? Don't know if it's the work or if they are easy to be worked. Anyhow, they all make the fatal leap.

But Bill Hayden, the super, was quite a lady's man himself for all his bawling out of the rest of us.

Mrs. Jones, the widow postmistress and professional chaperon, was pretty sweet on Bill. He didn't seem to kick on ten o'clock coffee and ginger snaps when he was getting his share.

The widow was a regular postmistress. Everybody's business was her business. She counted herself in on everybody's joys, and appointed herself chief mourner for everybody's sorrows. She was a favorite with the young folks, and was considered a cut-up by the older married clique. It was she who first started us in that mad whirl of society.

You know, fellows, ours was a king-pin job. It lay about two hours from where we are sitting. There was about a million yards of dirt to move and nearly fifty thousand yards of plain and reenforced concrete to lay.

But the cause of all the trouble was the grub.

Never knew there was any other kind of meat beside beef. We would order pork or mutton, but Charlie Bolin, in the main office, always read 'em "beef." We called him the god of beef. Reckon he had some secret grudge against cows and wanted to have 'em all killed.

That's why we fell for the girls. They would feed us real coffee and, once in a while, a ham sandwich made of real pork ham. I didn't blame the timekeeper. I was almost hungry enough to get married, too, and that's some hungry!

One night, when we were playing pitch, Dutch, the cook, came dashing in with the startling news that women by the score had charged up to the "Mad-House," as we called the shack where we lived, taken possession and were now waiting for us.

Of course, that busted up the game, and me with an ace, king, and deuce of spades ready to bid the money. I knew something was going to happen as soon as I took a slant at those cards.

Once before I held four aces in a poker game and just as I was raising ten the gasoline lamp exploded, killing a hunky and burning down the only thirst-parlor within four miles of the job. That's always my luck in cards.

We all hot-footed it for the mad-house to look over this female invasion. Old Bill Hayden sneaked in the back door and put on a clean shirt, his Sunday pants, and his holiday sweater coat. He also washed his face.

When he walked among the ladies with his hair parted and shiny he sure was cutting some gash. And when the widow trots him round, as if he was her personal property, and introduces him as "Mr. Hayden, *the* superintendent," he nearly swelled up and bust.

He was always just plain Bill. The only place he was given a title was on the pay-roll. That's where it counts most. But this Mr. Hayden, *the* superintendent, tickled him all over.

They were a nice bunch of females, and they just more than gushed over us, saying how "grand it was to be a man and build railroads." I always thought it was a helluva job until they started swelling it up. By and by we were all strutting round proud as new papas.

The girls wanted a ride, so Bill and me went down to the yard and had the fog buster fire up one of the goats. We coupled on a flat car and away we went up to the shovel and down to the dump. The girls were singing and squealing while we just posed, swung signal lanterns and showed off in general.

Funny how a guy shows off that way, ain't it? Any other time the braky had to do all the signaling, but that night, we all nearly broke our arms swinging lanterns.

And that night was the turning point in our camp life. Up to then there wasn't three white collars on the job. Later on every man had a couple of dozen. Ties were laying round all over, and speedy socks, silk shirts, and even tan oxfords, made their appearance.

Laundry bills jumped up and stared us in the face every week. Bottles of toilet water stood where beer bottles used to stand. I'll bet we used more soap in a week than the average camp does in a month. All in all we were some outfit. I thought we would have to chip in and hire a social secretary, we all had so many social engagements.

Everything was going rosy. The work slopped along and the society end just kept buzzing. Then came the night that Bill Hayden let off steam.

It was steam that was gotten up by a letter from the old man who wanted to know what troubled the last month's estimate. And, besides, the widow hadn't phoned Bill for three days, and he thought he was ditched.

He stormed out of the house and down to the crossing shanty to bawl out the operators or anybody else who happened to be round. While he was gone the phone rang. It was the widow.

"Please have Mr. Hayden call up as soon as he comes in," she says.

Bill blows in a little later chuck full of ideas and says to me:

"Cal, first thing in the morning get your gang and throw that whole strip of track, on the dump, about three foot, east. Tear up the first switch and move it up to Station 74. Run a siding for about a sixteen-car train. I'll take care of the track in the cut. We'll lay things out round here to do some running if we have to pull every spike! No more of this monkey business!"

"Mrs. Jones just called up and left word for you to call her as soon as you got in," I told him as soon as he shut up long enough for me to slip in a few words.

"I've got no time for Mrs. Jones!" he yells.

"Better call up, Bill, she ain't hurt you any. She didn't make out the estimate." That was the limit of my speech. I went to bed, but I listened to what Mr. Hayden, *the* superintendent, was throwing into the phone. Here's what he says:

"Hello, Mrs. Jones; how are you feeling"—"That's good"—"Yes, I have been real busy for the last few days; didn't have much time, you know"—"What!"—"Why, sure; me an' the boys would be glad to do it—"No, no! No trouble at all! It will be a real pleasure, Mrs. Jones"—"Yes, we will look for you at seven-thirty"—"Good-by, Mrs. Jones."

Then he was real quiet. I heard him strike a match to light a cigarette. By and by I heard him scratch another, and I knew he was smoking himself into better humor.

"Better wait with that track work," he said when he came to bed, "but send out a couple of men with spike-mauls and track-gages to put the tracks in

good order. Have them see that all joints are bolted, and switch the flat on the siding near camp."

"Why this sudden change of plans, Bill?" I asked, acting real interested.

"Well, you see—er—you see, Mrs. Jones had some young lady friends visiting and she wants me—that is, us—to meet them. And they want another ride over the new right-of-way." He was looking kind of foolish now, the old cuss.

"I thought you was through with all this stuff?" I was getting back at him now.

"Your girl is coming! What are you kicking about! Can't a man change his mind if he wants to?" he asked, getting cranky.

"Mrs. Jones is a pretty nice old girl, ain't she Bill?" I said.

"Aw, go to—" That was all I could get out of him.

Next day, bright and early, Bill has three hunkies scrubbing out the madhouse. Things just shined in the old place. By seven-thirty that night we were all dolled up.

The last time we run that society special, Bill jerked the throttle; but this time he got the stoker to run. Seems as if he felt his place was with the ladies. Somehow or other, I didn't like the idea of a green hand running that engine. The coupling on that flat car had a way of slipping if she wasn't handled real careful.

The bevy of fair dames showed up right on the dot, all dressed in white. Think of dressing in white to ride on a flat car and be a target for cinders. But they weren't as big a fools as we were at that when it came to dressing up—we should have known better. Women naturally want to look their best, and men, poor devils, want to look their best on account of the women. Funny, ain't it?"

In the dark we rode up to the shovel, engine ahead, pointing out the places of interest. Then we went down grade and out on the dump. It was about a four-mile run and our track stopped where we were building a bridge over a sag.

We had one abutment in place and a concrete mixer on it to pour concrete down a shoot into the center pier. Our rails ran right up onto the edge of the abutment, then came a straight fall of forty feet to the sag.

We were clipping right along at a pretty good pace—a little too good—so Bill signaled to slow down. The engineer threw on the air too quick and I could feel us slip away. There was no jar or anything, but we went just like a runaway horse I once saw slip out of the traces when the wagon hit a post. It seemed as if I could almost feel the car kick up her heels in the enjoyment of her freedom.

At the first click of the coupling, Bill jumped for the engine. His hand closed on the number plate and he climbed the side-board to the cab. Now, that ain't a picnic. It takes a quick thinker, a quick jumper, and a bunch of nerve to take that chance.

I made for the hand-brakes, but they were out of commission. We had loaded ties several days before and bent the brakes so they wouldn't even turn.

We had about a hundred-foot lead and were going strong, before Bill got to the throttle. He opened her up and she came tearing at us, shaking and puffing like she was alive. I kicked open the coupling. She hit—but did not stick. She just sent us ahead a little faster.

By this time everybody wised up the trouble. They were a pretty scared bunch, but nice and quiet—too quiet. Women scream when they think they're scared; but when they flirt with the genuine article they're quiet, same as men.

I opened the coupling with my hands and waited for the next bump. Bill had her opened pretty near the limit now, because we were sure stepping right along.

Bump! He hit us again and I thought we connected; but she slipped

and our wheels speeded up another notch.

By this time the bridge was getting pretty close. I looked back. The timekeeper had a strangle-hold on his girl. If we were about to go over the wall, it was a cinch those two would land pretty much in the same spot. I could see the light of the fire as the watchman coaled up the boiler at the mixer, could see him reach up to try a steam-cock and then kick the fire-box door shut.

I'll remember that man reaching for that steam-cock if I live a hundred years. I have heard before how you remember little things you see, when you think it's nearly cashing-in time; same as Sandy on the Lake job. His engine rolled over the fill and while he was going over he noticed a hunky with a funny round hat. Sandy was nearly killed, but when he opened his eyes in the hospital, he asked about the guy with the funny hat.

Well, we had to make a go of it next time—if there was to be a next time. Bill had to let her open to the last notch to catch us. The engine coupling got within a few inches of the car and seemed to stay there, just running even.

I could reach out and touch it. Guess I did, because, all of a sudden, she seemed to leap ahead, and the coupling closed with a piece of my little finger. But she stuck this time and Bill worked the air gently. We slowed down real gradual, not coming to a dead stop until we hit the mixer and tipped the hopper clean over the wall.

I was sweating as if I had been rolling flues in a boiler before it was cold. Bill sat in the cab and called that stoker every name in his very flossy vocabulary. Widow Jones says: "Why, Mr. Hayden," but it just seemed to fire Bill on. He pulled back to camp and then sailed right into those women as if they had loosened the coupling. Funny fellow, Bill. When he got mad he was mad with everybody and everything.

"Now, look here," he says to the flustering females, "this is the last ride, and I want you to understand, once and for all, this is a railroad camp! a man's camp! and a man's work, and I don't want any more of you women around here!"

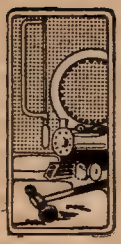
With that he walked away—so did the ladies.

We got forty thousand yards that month, too.

What became of the ladies? Gosh, I don't know. We never even seen 'em again. Anyhow, Bill saw to it that we got better grub, so we never missed 'em.

"30" FOR OLD 195.

AFTER an active life of thirty-nine years the headquarters of the Western Union Telegraph Company, at the corner of Broadway and Dey Street, New York, familiarly known as "One-ninety-five," has passed into the hands of building wreckers, and soon will be a thing of the past. Around the old building will cling many memories of bygone days, although, in late years, it was evident that the sentiment attached to it was also disappearing. Everything has been gravitating toward a machine basis, and what was affectionately looked upon by the old-timers as a sort of a home, became simply a workshop of brick and stone, with a lot of clattering instruments. Stern business necessity demanded that the old place give way to modern progress and ideas. It was out of joint with the spirit of the times, that is all. During its existence this old building throbbed with the life of the entire world. In one sense it was the pulse of the world, for every happening, great or small, in any clime, was felt and recorded here. Locally, the building has been the scene of stirring events of its own, and if its walls could speak, what an interesting story they could tell! Upon its site will be reared a building of noble proportions, but it will not be the same place to the old-timers. It will be the office, the workshop having been moved further up-town.—*Telegraph and Telephone Age.*



What the INVENTORS Are Doing

BY LESTER L. SARGENT.

SAN FRANCISCO will startle the visitor to the Pan-American Exposition with a novel up-to-the-minute invention from the moment he steps into the proposed new roller-railway on which he will glide from the Ferry Building at the foot of Market Street to the entrance of the exposition grounds.

Wheels, trucks, and rails are dispensed with on this new railway. The car bodies rest directly on rollers that take the place of rails and travel tobogganlike down grade by the force of gravity. A few stretches of upgrade in the route will be easily negotiated. At these points an endless chain, driven by an electric motor, will take hold of the train and pull it up the incline.

The inventor, James M. Pitkin, makes the following interesting comments on the invention:

"The salient feature is that as cars are divested of wheels, trucks, springs, air-brakes, *et cetera*, the dead weight carried reduces structure and power required to a minimum only slightly in excess of the real load. The cars run automatically throughout, turning on the power at elevating structures as they approach, and turning it off as they leave. The speed of a car traveling on a succession of freely rotating rollers is constant and does not accelerate, as is the case of cars on wheels or rails."

The engineer of the exposition city has pronounced this gravity railway feasible.

A NEW kind of thrill has been devised for the exhilaration of the scenic railroader. It is accomplished by a cut-out in the track, designed so as to cause a passenger car having swiveled trucks to automatically reverse itself bodily without changing its course as it coasts down the incline. Another cut-out a little beyond the first one will again rotate the car so that its surprised passengers on completing this second waltzlike turn again proceed face forward.

The inventor who perfected this new thriller is Thomas D. Hooper, Jr., Philadelphia.

A NOVEL Journal-Box Cooler has been invented by Bartholomew Julien, Omaha, Nebraska. A reservoir of water is provided which is clamped above the journal-box. A flexible tube leads from the reservoir to a delivery tube which is arranged to spray the journal uniformly and to insure all parts of the journal being cooled to the same degree.

A valve regulates the flow of the water. This valve is regulated by a thermostat so that the flow of the cooling liquid supplied to the journal will be diminished in proportion to the cooling until the temperature in the box becomes normal, when the valve will be entirely closed.

The spraying tube extends throughout the major portion of the length of the journal, to assure uniform cooling of the journal and journal-bearing. The device can be fastened directly on a journal-box and does not require provision for attachment to the car body.

WHEN you go for a ride in the new Monorailway System of the National Rapid Transit Company, Seattle, Washington, you will ride in a torpedo-shaped car which perches on a single rail that is supported by a trestle or superstructure of inverted V-shape.

This construction permits depending under-tread driving-wheels to hang below the level of the bottom of the car. These wheels, which are oppositely mounted and at right angles to each other, engage with opposite slanting *under-tread* surfaces of the beveled rail-head.

The driving-wheels thus grouped around the rail-head insure equilibrium and are a

protection against derailment. The car, of course, is supported by an upper central driving-wheel which extends squarely across the top of the rail-head. The wheels, both upper and lower, are positively driven by a suitable motor mechanism.

The depending angularly mounted driving-wheels are normally out of contact with the under portion of the rail-head, but may be clamped to it at will to obtain increased tractive power or to correct any swaying of the car.

This startling departure in railway construction is the invention of Walter D. Valentine, Altadena, California.

JOHN FITZGERALD, Highlands, New Jersey, has devised a Safety Signal to give warning to an engineer of the condition of a semaphore when the semaphore lamp is out as well as when it is lighted. The invention is said to be applicable to any semaphore system of signals now in use.

"The device," says the inventor, "consists of a contact member secured to the track and connected to a semaphore signal through the medium of wires, a time-clock, and a bell. The pole of the semaphore and the semaphore are each provided with contact members for closing the circuit. The engine is also provided with a contact member which is connected by wires to a bell in the cabin. When the semaphore is set at danger, should the train attempt to pass, the contact member on the engine will engage the contact member on the track, thereby closing the circuits, ringing the bell at the station, and the bell in the cabin, and recording the time in the clock."

TWO new candidates for the position so long and persistently occupied by the common wooden railroad-tie can now be announced. The most recent is a composition tie invented by Alfredo Giuliani, New York City. The somewhat startling claim is made for this tie that it is "water, fire, rust, decay, and vermin-proof; indestructible; will not expand or contract; and, by its elasticity and tensile strength, will stand any strain." It is composed of macerated paper four-sevenths, cement one-seventh, sand one-seventh, and one-seventh tar, substantially, and is reenforced by steel rods.

The other rival of the plain old-fashioned tie consists of a wooden core treated with a preservative, such as creosote, which is then inserted into a heated steel-jacket, which, on cooling, is shrunk onto the wooden core. The inventor, Charles Lynn Seyler, Academy, West Virginia, claims as advantages, "the minimizing of the amount of wood employed, the increased strength of the tie, the preventing of splitting of the ends, and the wear of the tie upon the ballast, and the fact that the ties are less bulky to handle."

INTERCHANGEABLE lenses of different types are provided for in the new Signal Lamp for use in railroad service which has been devised by Furman D. Spear, New York City. Lens sections and opaque sections which form the flame chamber are alike in size and are removable and interchangeable. The transparent lens sections are constructed so as to spread the light, and one or more of the opaque panels or sections are provided with a lens which concentrates the light in a beam. The latter, for example, would be utilized for a straight main track, while the fanlike lens would be used to cover curved tracks.

MARTIN W. BROWN, New York City, has patented a Reversing Mechanism for Engines. Its object is to prevent accidental release of the reverse lever from the quadrant; to insure safety in effecting adjustment of the lever when the engine is traveling at high speed; to provide for fine gradations in such adjustments.

A toothed quadrant operating in conjunction with the reverse-lever is engaged by a worm-wheel mounted in a worm-carrier. The worm which operates the quadrant is, in turn, operated by a hand-wheel and interposed gearing.

A raising and lowering device for the worm-carrier is provided in the form of a pivoted lever, by which the desired adjustment of the worm-wheel and quadrant which it engages can be conveniently made. This lever and the hand-wheel by which the worm is operated are located in proximity and may be operated by the engine driver with the same facility without changing his customary position in the cab of the engine. A locking cam bearing on the top of the worm-carrier, as it swings into locking position, serves to depress the carrier and lock the worm and toothed quadrant in engagement.

NATHANIEL H. BABSON, Rockport, Massachusetts, has patented a novel type of railway rolling-stock having one set of wheels on both forward and rear trucks disposed in a reverse position from the customary one,

with wheel-flanges exterior to the rail-head. This, the inventor explains, will prevent spreading of the rails. Just what might happen at switching points to cars equipped with this novel arrangement of the wheels is not explained.

IMPROVEMENTS have been devised in the low-vaulted Railroad Train-shed invented by Abraham L. Bush, East Orange, New Jersey. This shed has longitudinal smoke-ducts arranged in the roof lengthwise over the track to allow the smoke to readily escape.

A newly patented feature is the converging upper or rooflike walls of this smoke-duct, which is of particular service in rainy and wintry weather. Ventilating ducts have been added to the smoke-ducts. They open into the smoke-ducts from the roof of the shed for the escape of steam, hot air or gases which reach the angle between the under side of the ceiling and the smoke-duct.

This obviates the injurious effect exerted by gases and smoke on the steel framework of the shed when confined there.

JAMES W. BREES and Oscar L. Hupp, Indianapolis, have jointly invented an Adjustable Sectional Railroad Crossing. Such a crossing may be easily repaired, as any worn section may be removed and replaced by a brand-new section, without disturbing the other sections in the crossing.

A DIVIDED Semi-Automatic Signal Lever, invented by Winthrop K. Howe, has been patented to the General Railway Signal Company, Gates, New York. It is suitable for use as a manually controlled signal, as a semi-automatically controlled signal, and as an automatically controlled signal. The lever in this device is adapted for movement between a normal and a reverse position and formed in two parts. One uniform indication mechanism is employed for use with both a manually controlled signal and with a semi-automatically controlled signal. The mechanism mechanically locks to prevent clearing of signals governing movements opposed to semaphore.

CLARA B. SNYDER, Fostoria, Ohio, is the inventor of a Railway Torpedo. The new torpedo comprises an inner case containing the explosive, and an outer enclosing-case with the ends of the outer case projecting considerably beyond the inner case.

A rail-engaging strap of lead secures the torpedo to the rail. The projecting ends of the outer case, being unfilled, are caught and clamped by the wheels of the locomotive before the inner (filled) case is reached by the wheel.

This avoids the danger of this torpedo being "popped" from under the wheel and thrown from the track without being exploded. The patent rights in the invention have been acquired by the American Fog Signal Company, Pittsburgh, Pennsylvania.

J. D. MARKS, Jamieson, Oregon, is the inventor of a Rail Fastening Device designed to prevent spreading of rails. It is of the type by which overlapping flanges grip the outer base flanges of the rails.

GREENLEAF WHITTIER PICKARD, Amesbury, Massachusetts, has invented a Detector for wireless telegraphy and telephony that is adjusted easily and has improved properties of stability (mechanical and electrical). The contact member consists of a conducting wire formed with a loop (or loops), and an adjustable rod to which one end of the wire is attached.

The looped wire spring contact gives mechanical stability, shocks or jars being taken up by the spring without moving the contact terminal. The electrical stability is due to the non-oxidizing properties of the platinum-gold alloy employed.

Patent rights in the invention are owned by the Wireless Specialty Apparatus Company, New York City.

A LOGGING CAR, invented by Basil Magor, has been patented to the Magor Car Company, New York City. It has an improved construction of the log-supporting bunks, one feature of which is an inverted channel-plate which provides a convenient protected space for the chains.

AN Apparatus for Selective Wireless Telegraphing is the invention of Frederick G. Sargent, Westford, Massachusetts. It is an intricate device involving the use of dials and indicators at each station with means for their synchronous rotation with those of other stations, so that the instruments may be adjusted in unison. The device is designed to prevent the reading of messages by any

party not having such a device, thus making secrecy possible in "wireless."

AN Electric-Motor Wrench for drilling rails has been devised by Eugene W. Burroughs, Norfolk, Virginia. The motor is placed on a carriage of such form as to permit of ready adjustment of the wrench to the rails. The motor carriage is adjustably mounted on supports in the form of parallel rods with hooked ends. These engage over the far rail so as to be supported by both rails.

A FLEXIBLE Connecting Conduit for Locomotives and Tenders is the invention of John E. Muhlfeld, Scarsdale, New York. It is intended for locomotive engines burning pulverized fuel. It consists of an outer flexible conduit of heavy canvas and an inner metallic sleeve rigidly fastened at one end to either locomotive or tender, and entirely free at its opposite end.

TO make brakemen's work more pleasant, Morgan A. Green, Montpelier, Idaho, has devised a new, low, freight-car step and grab-iron. It is arranged between journal-boxes, and provides an easy step to the car ladder.

JAMES A. SPECK, Salem, Oregon, has obtained a patent on rails with beveled or diagonally cut ends. A substantially continuous tread surface is thus provided between rail-ends, at the same time allowing space for expansion and contraction of the rails. A rail-chair combined with this feature forms the basis for the patent.

THE CALL O' THE RAIL.

BY C. A. CHEATHAM.

OH, the call o' the rail is strong, tonight,
And it's raging in my veins;
And I'd follow the trail of the bright headlight
Over mountains, valleys, plains.
I'd follow the trail of the iron steed,
As I did in the long ago,
From the mountain grade to the home-yard lead,
Wherever the trail should go.

Oh, I'd hit the road in the dark of night,
And my heart would sing a song
To the tune of the wheels in the soft starlight,
While the long train rolled along;
And I'd breathe a prayer on the midnight air
To the loved ones safe at home.
That the dawn would bring me safely there—
The prayer of those who roam.

I would know the men that I knew of old—
All strong and brave and true—
When danger but made their hearts more bold,
And their code was "die or do."
I'd feel the grip of a comrade's hand,
All rough and stained and hard;
Oh, I'd travel back and I'd take my stand
With the men who called me "pard."

Oh, the call o' the rail is gripping strong,
And its call is sweet to hear;
And the tune o' the wheels is a lilting song
That's ringing in my ear.
With a cadence sweet its measures beat,
And its music cheers my heart,
And I long for the feel of an engine seat
And the thrill of an engine's start.

Oh, could I go, my heart would leap,
On the road to Long Ago;
But the run is long and the grade is steep,
And the fire of life is low;
So I must wait here for my last long run,
Through the grim, uncharted night.
May the signal lights, when my course is done,
All show but gleaming white.

"SAFETY FIRST" FOR EXPLOSIVES

Railroads and Manufacturers Combine in a Campaign to Reduce Loss of Life and Property.

DEATH ROLL PLACED AT ZERO SINCE 1911

Six Hundred Million Pounds of Dynamite, Six Million Gallons of Petroleum Products, and Twelve Million Dollars' Worth of Matches Are Only Part of the Shipments Carried Yearly by the Railroads, and Labeled with the Red Warning, "Danger!"

BY WALTER H. COTTINGHAM.

APPROACHING a small Illinois town, a freight-train went off the track. The second car was loaded with seven hundred cases of paint and varnish. The shock burst open some of the metal cans; sparks produced by the friction of the steel underframe as the car was broken up set fire to the paint that leaked through the boxes, and the whole car was soon blazing. There were terrific explosions as the heat caused other cans to burst their wooden casing and belch forth inflammables.

With paint and varnish spurting in all directions from the exploding cans, six other cars were soon blazing with a fire against which water was absolutely useless. They burned down to the trucks. Had such an unquenchable fire occurred while the train was traveling through the heart of a large city, with factory buildings crowding to the track's edge, that spurting, blazing oil might have cost many lives and damaged a large amount of property.

A contractor in a growing city of the West needed dynamite in a hurry. He had a standing order with a powder mill to send him regular consignments, but a sudden change of plans called for five thousand pounds before the first car was due.

It happened that he had in a storage magazine in another part of the State just that quantity in the form of thirty-six-inch cartridges—"left-overs" from work in a quarry. The railroad agent hustled a car to the magazine, and the shipper loaded the sticks of "compressed hell" into the car, in boxes, with about as much blocking and staying as if they had been cakes of soap. Two boxes were even placed on end!

Now, dynamite is made by taking nitroglycerin and absorbing it in "dope," which acts exactly as a sponge absorbing water. If you hold one of

these saturated cartridges up vertically it will drip just like a wet sponge.

Next morning, as the way-freight slowed up at a little village, sharp crackling noises were noticed under this car. The conductor and several trainmen went in to investigate. Noticing that the two boxes standing upright were leaking, the conductor told his men to place them on their sides. The men picked up the cases, and one of them, in putting his hand under the box to lift it, got it wet with this liquid of unknown characteristics.

"I'll bet this stuff is good for your complexion," he said to his mate, and playfully proceeded to wash his companion's face with his wet hands.

The box had evidently been standing over a hole in the car floor. During the time the car was stationary a quantity of the liquid leaked down, and when the car started up and the wheel pressed on the rail it exploded a pool of nitroglycerin, connected with the five thousand pounds in the car, and propelled a dozen lives into eternity, maimed others, and demolished many buildings.

The railroad was the defendant in a string of damage suits, including one pitiful case of a girl who was working in a telephone booth in a building a long distance away and who was brought into the court-room on a stretcher a year after the accident.

Death Roll Cut to Zero.

It used to be common to find loose gunpowder on the floors of cars in transit, paint-cans with lids so imperfectly fastened that inflammable vapors escaped, and barrels of oil with leaking bungholes.

Both the "safety first" movement and the organized effort for economy, before 1907, had held down the damage from such causes to a degree which seemed incredible in view of the extent of the traffic; but in that year the death roll was still 52, and the property loss $496,820.

The railways then established the Bureau of Explosives to reduce such loss still further. As a result, in 1912 and 1913, there were no deaths whatever, and the property loss was but $10,200 in 1912, and $22,048 in 1913. In the latter year one item of $18,000 was due to the criminal act of an individual whose object was to collect an accident-insurance policy, leaving $4,048 as the actual loss properly chargeable to shippers and carriers.

In four explosions last year on non-railway property lacking the railway regulations 136 people were injured, 57 killed, and property to the value of $951,500 was lost. Two of these accidents were on steamships, which are not yet legally under regulation. The bureau is materially reducing the danger of fires in the transportation of inflammables. In 1910 there were 15 deaths from this cause, in 1911 there were 10, in 1912 only 7, and in 1913 no deaths.

Dr. C. B. Dudley, late chemist of the Pennsylvania Railroad, tells a story to illustrate the lack of knowledge of the nature of explosives prior to the existence of the Bureau of Explosives. A chemical company on the Delaware River, manufacturing high explosives, was in the habit of transporting its product by water because the railroad positively refused to handle it.

A freeze-up on the Delaware River put an embargo on their transportation, and a representative of the factory went to see the late A. J. Cassatt, then vice-president of the Pennsylvania, to induce him to carry it on his company's cars.

"I'm afraid of the stuff," he said. "Suppose it blew up going through Philadelphia or Harrisburg or Pittsburgh?"

The agent assured Mr. Cassatt that the explosive was as safe to carry as Boston beans, and Mr. Cassatt finally promised a test. Dr. Dudley was sent to the chemical plant to experiment. A boy climbed a water-tower thirty feet high with a box of fifty-per-cent dyna-

mite and his pockets stuffed with loose cartridges. At a given signal the boy was to throw the box of dynamite and cartridges from the top of the tower.

"Where are you going to stand?" Dudley asked the superintendent.

"I'll stand right here. There is no danger," the superintendent answered.

"If you don't mind, I'll get behind this pile of rails," said Dudley.

The box was pushed off the tower. It crashed on the stones below and shattered; but there was no explosion! Then the boy took the cartridges out of his pocket, one at a time, and threw them down on the rocks. The object was to show that certain shocks are not hazardous with a well-made nitroglycerin powder.

The Demand for Explosives.

Only railroad men realize the magnitude of the problem concerning inflammables and explosives. In the "forties" the entire product of explosives in the United States was about eight million pounds. This was the old black powder used almost entirely by the army and navy and by sportsmen. But during the last thirty years the demand for explosives for peaceful purposes has greatly increased, so that to-day at least three-fifths of all our structural material is produced by their assistance.

Mining, quarrying, the building of railroads and sky-scrapers, and the construction of new subways calls for explosives in huge quantities, so that the total production of all kinds in the United States now amounts to about 600,000,000 pounds a year. Three-fifths of this is classed as "high explosives." Add to this about 6,000,000,000 gallons of the products of petroleum, about 100,000,000 gallons of liquid paints and varnishes, not to speak of photographic films and chemicals and other acids and $12,000,000 worth of matches, and you have some idea of the magnitude of the consignments of "explosives and other dangerous articles."

The railroads are compelled to transport these products from manufacturing plant to destination. At any moment of the day or night there are at least five thousand cars containing explosives and an unknown number of cars containing inflammables distributed over the country.

The average citizen will not willingly approach within half a mile of a building bearing the sign: "Dynamite. Beware. Keep out!" But the railroad must take that citizen within a few feet of cars containing many times the quantity of explosives that he shuns in the magazine.

Not only must the railroad take the citizen safely by the dynamite car, but the dynamite car must be taken safely by him and even through the heart of densely populated cities.

Many attempts were made to improve conditions by legislation. One statute required that dynamite should be packed in metal boxes, the outside of which should be a cover "of plaster of Paris or some other substance which would not explode when saturated by nitroglycerin," and provided a fine of two thousand dollars for each violation, half of the money to go to the informer.

No such substance is known to science, but a very good high explosive can be made by saturating plaster of Paris with nitroglycerin. This act was repealed in 1908 through the effort of the Bureau of Explosives.

Organized Precaution.

For a score of years the railroads struggled to decrease the chances which were so greatly in favor of fires and explosions on their property, only to have their work nullified by the carelessness of an agent or a shipper. A fatal fire or explosion would unnerve an entire railroad personnel for days, from the general manager of the road—overwhelmed with fierce newspaper criticisms, by the general public, and even by his own personal friends—to the superintendent and agent involved.

Need was apparent for another of those railway operating organizations for the promotion of efficiency and economy, of which no less than one hundred and seventeen exist to-day, and of whose labors the Interstate Commerce Commission in 1902 said: "They have done a work that is unique in the sense of influence exerted and results accomplished."

The science and skill which in the ten years from 1902 to 1912 has effected such tremendous economies as the adding of 113 tons, or thirty-eight per cent, to the average train-mile load by improvements in train and road equipment, and the increasing of the tractive power per locomotive by 7,468 pounds, or thirty-six per cent, must be focused on the transportation of inflammables and explosives.

So, in 1905, James McCrea, then president of the Pennsylvania Railroad, advocated before the American Railway Association the appointment of a committee to prepare regulations for that purpose. While the personnel of that committee was still under consideration, May 11, 1905, there was an explosion at Harrisburg, Pennsylvania, sacrificing twenty lives and property valued at $600,000.

The committee drew up its regulations, employed civilian experts on inflammables and explosives, and consulted representatives of the Army and Navy Bureaus of Ordnance. But the adoption and publication of these regulations did not produce any marked change in the handling of dangerous articles, and a year later Colonel B. W. Dunn, who had been for years in charge of the United States Army's laboratory for testing and investigation of explosives, was "borrowed" from the government to organize a field force to educate the freight-handler and the shipper. The first important act of Colonel Dunn as chief inspector of the bureau was to suggest that the opposition of shippers to the regulations should be overcome by having the Interstate Commerce Commission embody them in the law of the land.

A bill to do this was drawn up and passed by Congress directing the commission to make and enforce rules for the packing of inflammables and explosives. The bureau makes the rules and the sanction of the commission clothes them with the full authority of Federal law.

Organizing the Bureau.

The Bureau for the Safe Transportation of Explosives and Other Dangerous Articles opened headquarters in New York and built a chemical laboratory at South Amboy, New Jersey, fitted up with elaborate testing and analytical apparatus in charge of experts.

A force of traveling local inspectors was engaged, assigned to various parts of the United States and Canada, and instructed to make periodical visits to all stations in their district from which explosives and other dangerous articles were handled, to each manufacturer of explosives, and to each storage magazine from which explosives were or might be shipped by rail.

The chemical laboratory of the bureau, in the course of a year, tests about a thousand samples of dangerous commodities offered for transportation, ranging from dynamite to pure-culture yeast for beer—a heavy metal vessel of which had been sealed up in one instance before the fermentation had ceased and produced an explosive gas.

At first manufacturers of explosives fought shy of regulations which involved more expensive packing, fearing that their competitors might in some way avoid this expense. So, in 1907, Colonel Dunn invited these competitive manufacturers to meet him. Some bitter business rivals came together in friendly conference for the first time in their lives. Match men and powder men rubbed elbows with manufacturers of paints and oils, compressed gases, deadly acids and fire-

works, shippers of gasoline and makers of boxes, forming committees to cooperate in the rigid enforcement of the rules formed for the equal protection of public, shipper, and railroad.

Paint Manufacturers Cooperate.

The paint manufacturers have from its inception cooperated freely with the bureau. The demand of the shipper for quick service and the carrier's struggle against freight congestion have developed the automatic impact coupler, the gravity-track or "hump," and the steel underframe car. The effect is to reduce from minutes to seconds the time required to move and group these cars on specified tracks and to increase correspondingly the severity of shocks incident to this rapid disposition.

The manufacturers of paints and varnishes have raised the shock-resisting powers of their containers to meet the new conditions, so that these highly inflammable liquids may be shipped under normal conditions with absolute safety. An important part of the educational work of the bureau takes the form of stereopticon lectures delivered by Colonel Dunn and his associates to freight-handlers and shippers in all parts of the country.

At the present time the bureau's membership comprises 326 railway companies operating 256,842 miles, 11 steamship companies, and 10 express companies, while 62 manufacturers of inflammables and explosives are associate members.

One of the most important tasks was to secure the relocation of explosive-magazines. In the West, especially, conditions are favorable for disregarding safety in locating these magazines. The pikes are poor, and transportation over them by wagon is expensive. A dealer in explosives who receives only one or two car-loads a season naturally will seek economy in transporting this material to and from his magazine; and he will place his magazine just as near the railroad as he can in order to effect this economy. In many cases no supervision has been exercised over him, with the result that the magazine is found from thirty to fifty feet from the main track.

In one case the magazine was so close to the track that a railroad car could not get by if the door of the magazine were open. In other cases, a magazine once properly located was encroached upon by the growth of a town or village so as to become a positive danger.

The "Table of Distances."

There is no law compelling a manufacturer or dealer to change the location of his magazines, but Colonel Dunn, in 1909, again appealed to the manufacturers and brought forcibly to their attention the urgent necessity for radical changes in location.

A committee undertook a serious study of the subject and ransacked the world in search of data relating to the effect of explosions. Agents studied explosions that had taken place in the United States, Europe, India, Australia, and South Africa. More than 500 separate explosions were studied, and 133 were finally selected as a basis for an elaborate series of charts and tables.

Thus was evolved the "American Table of Distances," showing graphically by means of charts all known explosions that have occurred since 1863 in regard to which reliable data could be obtained, covering quantity and character of explosives, together with distances at which material structural damage occurred in each case, and showing also, by curves, the distances required from dwellings and railroads for all quantities of explosives.

Immediately this "Table of Distances" was completed the industries represented by this committee set to work to change the location of all their magazines to comply with it, although there was and is no law to compel

them. These "distances" at which magazines can be safely located have recently been legalized in New Jersey and embodied in model ordinances for villages and municipalities adopted by the National Board of Fire Underwriters and the National Fire Protection Association.

A typical instance of the manner in which the manufacturer has cooperated with the railroads in this campaign to reduce the loss of lives and property is shown by the match companies. They formed a committee to decide on the sort of packing-case which would successfully resist rough handling. They built a strong case, placed it against a wooden partition in their laboratory, and on the other side braced the partition with huge logs such as are used to shore up buildings in danger of falling.

Then a giant log with iron weights was suspended from a pendulum. It represented approximately the weight of a car-load of boxes. This battering-ram was sent crashing against the case to imitate the impact which the box should be capable of standing during coupling operations. Many a stout box was shattered to fragments before the requisite strength was obtained and a specification drawn for the first time for the safe transportation of matches.

The bureau early appreciated the difficulty involved in uniform enforcement of the general requirements of the regulations that packages liable to catch fire or explode must be properly loaded and stayed to prevent injury during transit.

To overcome this, Colonel Dunn asked the manufacturers to bring to him drawings, photographs, and descriptions to illustrate the methods followed at their various plants. Diversity was apparent even among plants of the same company. The best features of all methods were developed by further study and by actual tests under service conditions, and a pamphlet was published with detailed drawings and photographs.

$43,000,000 IN BIGGEST GOLD SHIPMENT.

THE biggest transfer of gold ever made between subtreasuries in the history of this nation was recently accomplished when $43,000,000 was delivered to the United States subtreasury in New York. This transfer of gold was prompted by the large amount exported to Europe within the last few months. Bars were taken from the New York assay office at first, but the supply there was quickly exhausted. To stop further exportation notice was given bankers that gold bars would be put at their disposal at the rate of $5,000,000 a day. For these bars a premium was paid.

The express employees breathed a sigh of relief when the last consignment had been safely ferried across from Jersey City and deposited in the subtreasury, says *Express Gazette*. Although the Treasury officials decided on the transfer of gold rather suddenly, the express company was not unprepared for the work. Since 1904, when an exclusive contract for handling of government money was made the express company has been fully prepared.

The gold coin was put in the cars in Baltimore and Philadelphia in bags containing $50,000 each, and four guards were assigned to each car. The cars were sealed and remained unopened until a representative of the express company broke the seals in Jersey City. There the bags were counted, put in safes, and taken aboard the ferry-boats.

The government paid the express charges of the gold transfer. The cost of shipping coin from one point to another in this country averages about $1.50 for $1,000, with a somewhat different rate for bars.

It was estimated that the expense of sending the $43,000,000 to New York City was in the neighborhood of $50,000.

Spike Malone on Despatchers.

BY JOHN C. RUSSELL.

Who's to Blame when Two Trains Meet on a Single Iron and Both Claim the Right of Way?

THE call-boy routed me out of the hay in the Gila Bend clubhouse with a call for second 242. "And hustle up, Rusty," said he, "'cause this here is a stock extra, and we're going to double-head it through to Yuma."

I leave it to any man if there is anything so liable to engender a large, lusty grouch as being humped out of a snug bed early in the morning with the information that you're booked to eat dust, dirt, and sand from the engine ahead while double-heading over the Arizona desert. Oh, yes! It's pie for the fellow on the head 'gine, and leave it to him if he doesn't rub it in whenever he gets the chance.

While I was gobbling my coffee and hot cakes in the restaurant, Spike Malone strolled in with an evil twinkle in his eye.

"'Lo, Rusty!" he said. "You-all going to double up with me on this here blooming stock special? If so, you are going to get the ride of your young life. 'Cause why? You gets the 2781, which same takes all the pastry in the hard-riding class; but little Spike catches the large, new, passenger hog—that 2455—so watch my smoke!"

And that's what happened. At least until trouble started. Spike sure handed us the ride of our career from Gila to Sentinel, our first stop, and when we cut off to take water there here comes King Dodo Phillips just frothing at the mouth.

Old King Dodo ain't very remarkable except for the ease with which he pulls off stunts that border closely on the verge of the insane—which in any other conductor sure leads to being canned—and for a certain coolness in his pedal extremities that causes him to regard any speed over twenty-five per as simply suicidal. Consequently, he's some peeved at the way Spike has wheeled 'em from Gila over, and he lights on Spike with both his number tens for reckless running.

All the same, this here lecture of Phil's don't seem to worry Spike a little bit, and here we go through Aztec and Musina like a comet on a drunk. I'm just beginning to figure on getting into Yuma well inside of five hours, but the jinx has willed it otherwise, and Spike pinches 'em up to a stop coming through Kim. Here's Eugene Jackson Capell with a large red lantern and numerous torpedoes blocking the way. He climbs up into the '55, and I beat it over to find out the rumpus.

"Well," Spike hands him, "what are we up against now, cap?"

"Same old stunt," cap tells us. "Tom Collins in the soup agin. I don't reckon this Collins person has ever made a trip that I'm a party thereto but what he don't play hob with some-

thing. He's busted 'em in two up in the curves when he stopped to make the double of Mohawk Hill and put three reefers into the ditch. And that," said cap, as he bit into a fresh chew—" that is what he gits for trying to handle the brake-valve with his foot."

" Well," said Spike, " this here ain't no more than I surmises even so far back as when I'm leaving Gila. Why for? Because the despatcher sends me per that lunatic Phillips, who will presently come up here like the raging lion, a message which reads: ' Please give us best run possible, not exceeding speed restrictions.'

" Never yet has that message been handed me but what I don't get into a jack-pot somewheres and bust a good run all to blazes. If some walloper like this here Collins person don't tangle up the system, why, the despatcher himself takes a hand and sews me up in some God-forsaken siding. And of course there never was a caboose phone that worked in a situation like that.

" Ain't it funny," continued Spike, " how these here mudheads that this pike has got handling the wires over this division can cut loose with some of the worst jack-pots? How is it that they cuts in with these brainstorms and still hangs on to their jobs is more than little Spike sabes; it sure has me far out on a limb!

" And, remember, it ain't never a drag, nor a work train, nor such like, that has plenty o' time to go there and come back, that gets these here raw deals handed to 'em. No, sir! It's always the train that gets the hurry-up message; the train that's got the stock, or the bananas, or the circus, that gets made the dog.

" T'other day I gets a high-ball run over the Stormy. Nice a little train as you ever see. Twenty-seven hundred M's of oranges and a good mill. Me and Fritz Nemitz, who is the car captain, puts our heads together while we're waiting for the tissues and figures out that we-all are going to make a record run with this string.

" Now, you have just got to hand it to Fritz, that when it comes to working with an engine-crew he is one of those rare and seldom found cons that displays almost human intelligence; and this, as I'm now speaking of conductors, comes as near being praise as I ever unloads off'n my chest. At that, I like Fritz and claim he's about the best of the lot.

" Well, here we are, all lit up with joyous notions of some high-daddy of a run when the op hands us over the tissues and I get one look at the message-blank. Right there my joy curdles a heap. Here's one of these ' please-give-us-the-best-run-possible ' messages, and I hands her over to Fritz.

" ' Aw,' says Fritz, he entertaining notions similar to mine regarding these requests, ' I reckon that puts the kibosh on us—don't it, Spike? '

" But on looking over the orders we find that we have the right over everything on the line except the first-class varnished cars, so we don't figure the hoodoo can get in much fine work on us at that.

" Alarss! Now, if we had been allowed to hang on to our rights all the way it would have been fine shooting; but that's where the everlasting inconsistency of these here despatchers comes butting in and stirs up a heap of misery for all concerned.

" We rolled down around Pay-Car Curve and into Benson in fine shape, and beats it over to Hi Wo's for a few mouthfuls of chow.

" Remember, we're supposed to be a solid train of oranges. That is, we were, for here comes Joe Clausen, that long, disconnected, six feet of pump-water, with a message for us to pick up six tanks of oil to set out at Bowie.

" Of course we've got to switch them out from some confounded back track, 'cause nobody ever found any pick-up first out in Benson. If a road-crew ever gets into that hole and gets

out without having to switch the yard complete, I'll bet ten to one, no limit, they faints. I think there's a bulletin ag'in' it!

"Being as we lose quite a spell o' time performing these here evolutions, I romps on the old mill something scandalous going up Dragoon, but it don't do me a heap of good.

"Why? Just because I draws Gib Beyers for a helper; and Gib, being on overtime, ain't noways anxious to make passenger time up the slope. Gib figures miles or time, whichever is the greatest, and in this case it sure looks like time for Gib. All of which vexes me plenty, not to mention the effect it has on Fritz.

"And then the chump that's handling the trick on the despatcher's wire holds the board on us at Sybil. Now, it looks like these here blockheads has a heap o' time since we leave Benson and come dragging up the slope to get whatever orders he deems needful on the wire and ready to hand up to us so we don't have to stop; but, no! There's nawthin' doin' on the hand-up, so we has to halt 'em.

"This tickles Gib considerable, and he comes back to hee-haw about it. Bob Lyle is firing for me, and Bob is right up to the second when it comes to getting things over the road. Consequently, he's pretty well wrought up over the way things has been breaking, and the way he lights into Mr. Gibson Beyers for laying down on us while goin' up the hill is nothing short o' murderous. Bob starts down on the ground to add emphasis to his remarks, and Gib lights out for his hog in a little less than no time at all.

"Then here comes Fritz with the orders—and he's saying things to hisself. He shoves my orders and clearance at me and hikes over to Gib's hog, and from the way that Gib lights into the old mill from then on I judge Fritz has put thoughts into his limited-capacity brain-pan that banishes all thoughts of overtime complete.

"Now, here comes the muddle.

"My orders reads, 'Extra 2559 has right over No. 242, engine 2772, Sybil to Wilcox,' which is clear enough. Clearance was all O. K., too, so it looks like clear sailing for us as far as Wilcox anyhow.

"But when we gets to Dragoon and cuts off the helper, here's the board out there, too, so Fritz goes over for more orders while Bob and I holds a cussing match. Right here I want to rise to remark that when it comes to unburdening myself of a mess of scrambled language I'm no howling amateur, but this here Bob Lyle lays over me like tomato catsup over a mess o' beans.

"'What's the row *now?*' I queries of Fritz as he bounces up into the cab and pushes the orders at me. Even Bob shuts off his flow of sulfur and comes over for a peek.

"And here's what we gets:

> "No. 242, engine 2772, wait at Hado until ten-ten, 10.10 P.M.; Chochise until ten-twenty-five, 10.25 P.M.; Manzoro until ten-thirty-five, 10.35 P.M. for extra 2559 east.

"Right there I cut loose, and when things had simmered down I asks Fritz what he was going to do. We was all good and mad by that time, so we didn't give a hoot whether school kept or not. Bob, he being more or less radical by nature, up and hoots at us.

"'We got right over them, ain't we?' he asks Fritz.

"'We sure have,' Fritz replies.

"'And they wait for us?' Bob asks. And with that he fetches a cackle out of him like a setting hen and falls over on the seat-box, laughing.

"'Now, whatever is eating that bug?' Fritz demands of me, glowering at Bob. 'Where he sees any license to indulge in fits of merriment is a heap too obtuse for me to perceive. Come out of it, you merry lunatic!' he hollers, booting Bob off the seat-box. 'Come out of it and explain where you-all derives an excuse for

these here soul-shattering gusts of hee-haws you favors us with!'

"Bob heaves hisself up off'n the deck, full of gurgles.

"'Aw, say,' he protests, 'leave a fellow laugh. There ain't been a heap too much mirth on this here trip. I'm just thinking what a row we-all could raise if we wanted to.'

"Fritz eyes him up.

"'We-ll,' says Fritz, 'not that I'm overinterested in your fool schemes, but lets have it.'

"'We've got the right over those birds, ain't we?' says Bob. 'Well, then, what for a stunt would it be for us to blow on down the main line until we ran into their block, flag 'em, and demand what the so-and-so they're doing out on the iron on our time? There can't be no come-back at us, and there would sure be fun when W. W. cuts into the row.'

"Fritz lets that idea soak in for a spell, and then looks at me. I stares at the Dutchman for a while, and then we both begin to grin. Never tell me that Dutchman ain't game!

"'High-ball,' says Fritz.

"I whistled off, and here we go jogging on our merry way, most scandalous late and due to get a whole heap later. At that we was full of grime. We rolls past Manzoro, and no sign of 242 until we pops around the curve and—here's a red board! I stops and Fritz searches out a red lantern and thrusts it onto his head shack.

"'Git out and flag those mutts!' says Fritz to the shack, who goes stumbling off down the ballast.

"We gives him quite a start, and just as we are fixing to follow him at six miles per hour—in strict accordance with the book of rules, per Mr. Nichols, his interpretation—we hear the 2772 whistling out a flag ahead.

"Bob, he has another spasm, and Fritz comes as near fracturing his face as he can without permanently changing its shape.

"Carelessly humming a few bars of that ever-popular tune, 'There'll Be a Hot Time in the Old Town To-night,' I kicks off the air and we proceed to amble down the line after that head shack of ours. Gone was our gloom; gone beyond recall, with the prospect of doings in the immediate future.

"And there was!

"*Poco tiempo,* we overhauls our shack. He's in earnest conversation with the head shack of the 242's crew, and, from the way that the arms, lanterns, and such like are circusing round through the air, there is a whole heap of argument being turned loose on the Arizona atmosphere. 'Bout that time 242 drives up on the scene, and Fritz, Bob, and yours truly hit the grit, making war medicine like a grizzly on the rampage.

"At the same time 242's crew gets possessed of notions similar and surges onto the scene full of wrath and evil words. When I sees who it is I hangs my chin down on my watch-pocket and turns loose the laughest laugh of my career. Yes, sir, I laughs plumb from my toes up! It's McCafferty!

"And, gentlemen, hush! Mac is sure peeved! He's just filling his chest for a real tasty little bawling out when Fritz beats him to it.

"'What the blazes are you-all doing out here on the main line?' he howls. 'Whatcher doing out here? I want to know! I don't mind you pigheads overlooking your mitt once in a while; but why didn't you back up into clear at Cochise when you hit our block? You boobs has to come rampaging down the main line right in my face! I'm going to write the lot of you up, so help me Sam!'

"It's a circus to watch Mac.

"The Irishman stands there too blamed astonished to move while Fritz romps all over him verbally. Pretty soon he gets his wind back, and man—oh, man!—you ought to have heard him rave! It sure was great. Bob and me hangs onto each other, too weak to move.

"'Let me die!' gasps Bob. 'I

can't stand much more o' this,' he says, and with that he buries his nose in my waistcoat and makes noises like a dying hen. At that, I ain't a whole lot better.

"By that time many lanterns are hopping and hastening up 'longside the string, and pretty soon the conductor butts into the scene. Bob takes one look at him, and off he goes into another spasm. It's Compton!

"'Here, here!' says Comp in his deepest and most official tone. 'Here, Nemitz, what are you doing out here on the main line when we wait for you at Manzoro until thirty-five? Explain yourself,' says Comp. And with that Fritz transfers his attentions from Mac to Compton. Transfers is just right, for the way that the Dutchman lit into poor old Comp was a shame.

"'Explain myself!' yells Fritz. 'This to *me!*'

"Fritz hauls off his hat and heaves it onto the ties.

"'Explain myself! Why, you blithering idiot, it's up to you to do the explaining!' Fritz hands him, shaking one finger under Comp's nose.

"Comp promptly backs up. I can't say that I blame him a little bit, 'cause if Fritz wasn't mad he was giving the prettiest imitation I ever witnesses. Fritz follows Comp up, with McCafferty hovering on the outskirts of the row, trying to get in a word or two, though I can't say he had a heap of success.

"Then I hear Bob heave a gasp in my ear and slide out of my arms onto the ballast. 'Bout that time a new voice cuts into the mix-up, and here's Charlie Murphy, our efficient trainmaster, gently intruding his six foot three into the war.

"Right there I sits down. When I recover sufficiently to navigate to the storm-center things had quieted down under Mr. Murphy's able management, and there wasn't more than two at a time trying to tell him how the other fellow was all to the wrong.

"Finally Murph gets Compton's orders, and Fritz hands him ours. He looks them over a spell, and then the real explosion takes place.

"He chews on Fritz a piece, and then falls to abusing the chump in the despatcher's office that made the bull. Then he spies me.

"'And you, too!' he howls. 'Looks to me, Malone, like you would have had more sense than to come bulging into a situation like this! Why didn't you stay at Manzoro?'

"I managed to straighten out my phiz.

"'Why, Mr. Murphy,' I says, smooth as butter, 'we had right over 242. See here, sir,' I says, reaching for the orders, 'I'll show you. Says, "right over 242, Sybil to Wilcox,"' I says, pointing to the words. With that Murphy snorts.

"Then he turns on Fritz.

"'Back up to Manzoro,' he says, 'and let Compton by!'

"Then Fritz has a brain-storm.

"'No, *sir!*' says he. Murphy's chin falls near a foot. 'No, sir. If there's any backing up to do, 242 has got to do it! We've got the right over her, and unless W. W. annuls that order we're going to keep that right! So Compton will have to get out of *our* way—not us out of his!'

"Murphy glares at him for a minute, and then from the darkness behind us comes a braying like an Arizona nightingale in finest fettle. Murph fetches a jump a foot high. This last stunt of the Dutchman has been too much for poor Bob Lyle, and he gives rein to his emotions in a manner that ain't a bit short of hideous.

"Laugh! I never hears anyone tie our good Arizona air in as many knots as Bob did from then till I gets him bedded down in the cab. He's all in and too weak to move when I do get him settled.

"Well, the upshot of the whole matter is that Compton does back into clear at Cochise and let us by. And, believe me, the way I pulled McCafferty on when I rolled past him was

the limit. So we went on to Lordsburg, our pretty little run shot all to pieces. But then it was worth it; take it from me, friend, it was surely worth it!

"Of course we all reaps a mess of brownies, and Murph has been on our trail ever since; but I'll bet my next check against a last year's doughnut that the next despatcher that pulls a bonehead like that will have to hunt him a new job. That is, if Murphy is still trainmaster on this here Espee pike.

"If you don't believe me, ask Murphy."

In the November RAILROAD MAN'S MAGAZINE, Spike Malone will tell of his experiences while teaching a student fireman how to "keep her poppin'."

THE BROTHERHOOD OF RAILROAD SIGNALMEN OF AMERICA.

BY WILMOT J. PETTIT.

THE Brotherhood of Railroad Signalmen of America was organized to unite all signalmen actively engaged in construction or maintaining of locking and interlocking plants, mechanical, pneumatic, electric, or otherwise; to establish a fund for the relief of sick and disabled members and increase the efficiency of railroad signaling.

The organization saw its inception in the winter of 1901-1902. The men who installed and maintained the signal system in the Altoona, Pennsylvania, yards of the Pennsylvania Railroad met in B. O. Tower and appointed a committee of five men to represent the signalmen before Superintendent Shand, then in charge of the Pennsy's middle division, Altoona to Harrisburg.

Shand then told the committee that he could not discuss matters with them until the men were properly organized. The signalmen then endeavored to enter the various railroad organizations represented by the men in the Altoona yards, but could not because the constitutions of the orders did not provide for signalmen.

The signalmen met for the second time and formed an organization. They adopted the name "Brotherhood of Railway Signalmen of America." The charter was known as a mutual agreement. The constitution and by-laws were written in a book and for three years were signed by every man who joined the body. Later they were printed.

The constitution was revised and permanently adopted on January 2, 1912, when the seal was adopted and all officers installed.

There was a chief signalman, a first and second vice-chief signalman, recording and financial secretary and treasurer, a board of trustees of three members, and a grievance committee of five members. On March 7, 1902, the organization was officially launched.

Dues were collected and sick and death benefits paid to members and their families. The signalmen then

addressed Superintendent Shand and J. M. Wallis, general superintendent. The letter bearing the official seal was received and a date set for a conference. As a result a material increase in wages was granted.

The men then established local No. 2 at Lewistown Junction, on the middle division, a local No. 3 at Pittsburgh, Smoky City Lodge, and a local at Gallitzin, Pennsylvania, known as Allegheny Mountain Lodge No. 4.

These locals all worked under the mutual agreement charter. At the end of a year Smoky City Lodge sent a committee to Altoona to see if we could not form a grand lodge and obtain a charter from the State. On the 6th of April, 1908, the Brotherhood of Railroad Signalmen of America was incorporated under the laws of Pennsylvania.

They then met three other signal organizations in New York from the New York Central, Boston and Maine, and the New York, New Haven and Hartford. Consolidation was taken up. They decided on the Pennsylvania body, and later a convention was held in Philadelphia. Annual grand lodge conventions have been held ever since. The headquarters are located at 28 Newton Street, in Mansfield, Massachusetts.

The order includes signalmen who have been in the service over twenty years, signalmen who have installed, maintained, and operated the old style Sanby and Farmer interlocking machines. With their old style adjustments and connections it really required all the ingenuity a man possessed to adjust a switch with the conveniences then in use.

To-day those same men are maintaining the modern electric interlocking machines with ease and far more accuracy, insuring safety to the traveling public. Every switch is locked electrically as well as mechanically.

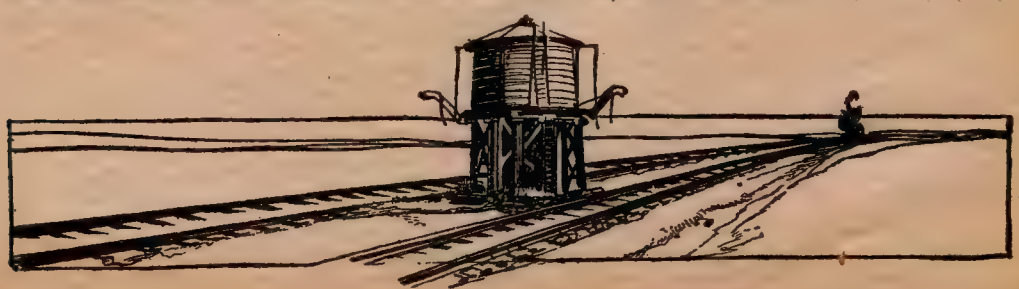
Some signalmen in the organization installed and maintained the old style disk or banner block signals, which was considered a great achievement in automatic block signals. To-day they are replaced by the semaphore type. With these the engineer has a clear indication that it is safe to proceed.

The operation of block signals is entirely automatic. An electric current flowing through the rails holds the signals in the clear position as long as the block is clear. A train, open switch, or broken rail interrupts this current, thereby releasing the electric clutch which is holding the signal clear and the arm immediately goes to the danger position.

When the block is again clear the signal is again restored to the clear position by an electric motor which is operated through the points of a relay connected with the electric current.

Each signal is designated by a number. When an engineer comes to a block signal standing in the danger position he stops his train, and is required by rule to proceed with caution through the block. Should he not find a train in the block, which is generally about one mile long, he reports signal No. 27 standing at danger.

The signalman for that division is called to ascertain why signal No. 27 stands at danger without reason, repair, and report the time signal was reported out of order, time again in service, and the cause.



PRIDE GOES BEFORE A FALL.

BY LYDIA M. DUNHAM O'NEIL.

'TWAS midnight in the roundhouse,
And all the lights were low;
The engines started talking,
As they sometimes will, you know.
And one was quite a braggart—
A traveled life she'd led,
Which made her rather boastful,
And this is what she said:

"I've traveled the country from coast to coast—I've seen all there is to see;
I've gazed with emotion out over the ocean, where the white-caps danced in glee.
You poor little engines who never have roamed, I pity your stay-at-home fate—"
"Shucks!" said the little engine that handles the local freight.

"Through the desert land, where there's nothing but sand, eddied and drifted and swirled,
Where the trails are strewn with bleaching bones, where the vulture swoops, I've whirled.
Where a dark-skinned race toils on the track from early morn till late—"
"Stuff!" said the little engine that handles the local freight.

"Down a mountain pass like a frenzied thing I've leaped on a single rail,
And the frightened eagles screamed and wheeled away from the narrow trail.
I've drifted down through the cañons deep where death and his minions wait—"
"Tush!" said the little engine that handles the local freight.

"And on the plains, where the long black trains go rushing like the wind,
With all my force I've run my course and never been left behind.
Oh, the joy of a race at terrific pace with a rival whose smoke you hate—"
"Bah!" said the little engine that handles the local freight.

"I could never exist on a freight-train run; I must be in the lead!
I would die of shame in your smoky yards, for I am a thing of speed!
To toil and moil—to shift and shunt—my soul would be desolate!"
"Slush!" said the little engine that handles the local freight.

The roundhouse foreman entered—
"Hello, old Forty-two!
You've had your day of glory—
I'm sorry now for you!
To-morrow you will enter
Yard service—prosy fate!"
"Yip!" said the little engine
That pulls the local freight.

Tales of a Transitman

Some Savage Snakes Encountered by the "Front Flag" and His Assistants While Laying the Long String of Stakes for a New Right-of-Way.

BY WALTER GARDNER SEAVER,
Author of "Told in the Roundhouse," "Ten-Wheeler Tales," etc.

Some Clean-Cut Shooting.

IT was one of those pleasant days in summer which makes one feel glad that he is alive. The party had resumed its work in the field after a little more than two months in winter quarters, and each and every member, from the chief of party to the cook, were in exuberant spirits, and went to the work with a vim that promised to send the long string of stakes well on its way to the north.

As it was so early in the season none of the party was devoting any particular effort looking out for snakes, as it was thought they would hardly be making their appearance until the days had become considerably warmer.

The party had been running location line along the crest of a divide in the cut-over pine lands and was descending the slope into the Chickasawhay valley. The line ran into a belt of cypress with a dense growth of bush. Sam, a negro axman, was ahead of the front flag, cutting a line through the bush, and for some time had been out of sight of the rest of the party, who were lolling around on the ground in various postures, smoking and making and numbering a new supply of stakes while waiting for Sam to cut away the brush so a sight could be had through the timber.

That he was unusually busy, however, was attested by the sound of the smashing blows of his ax and machete and the crash of falling trees.

Suddenly the sounds ceased, and then followed a piercing yell. Sam came plunging through the opening he had cut. His shining black face had assumed the gray color of ashes and his eyes seemed to protrude far enough to enable one to hang a towel on them.

"What's the matter, Sam?" asked the transitman.

"Mr. Jack, dah am de bigges' ole timbah rattlah yo' ever seed in dah!"

"Oh, go on, Sam. You've got 'em again."

"'Deed, Mr. Jack, it am so. He's quiled all up on a stump—an' he's singin' loud! Yas, sah! He am suah mad, and he des' about ready to fight!"

"Why didn't you chop him with your machete?"

"What, me chop him? No, sah! He would suah smack me one befoah I could touch him wid dat cawn-knife."

"Sam, you're scared."

"Yas, sah! Yas, sah! I suah knows better dan' to go projickin' aroun' dat pile of nastiness."

"Well, I've got my automatic here. You go ahead and show me where he is."

"What? Me go ahead? No, sah. De railroad am payin' me to cut bresh and not to hunt rattleahs!"

"But how are we going to get through there if you don't show us where he is so we can kill him?"

"Sam!" thundered the chief. "Go on in there and show that snake to Jack! We can't wait here all day."

"Yas, sah! Yas, sah! I'se des agwine, sah. Is yo' all camin', Mr. Jack?"

"Sure, go on. I'm right behind you."

Trembling like a leaf Sam went ahead, carefully and cautiously, putting each foot down with great care, only after he had scanned the ground. They went about three hundred feet into the tangled undergrowth when Sam suddenly stopped, and pointing said:

"Dah he am, sah."

About fifty feet away was a blackened stump, on which, piled coil on coil, was a big timber rattler. His tail, sticking up like a man's thumb from the center of the coil was quiescent, and the ugly triangular-shaped flat head was drawn back, resting against the coil, while the bright beadlike eyes sparkled.

From the size of the pile of coils it was apparent that a relaxation of the tension would throw the snake at least ten feet in their direction.

As the party came in sight the snake's head raised and began to swing from side to side, the tail vibrated so quickly that the eye could not follow it and the "whirr-r-r" of the rattle rang out sharp and distinct. The snake was in a bad humor and was only waiting for the intruders to get within striking distance.

Sam's knees knocked together and his teeth chattered while he slowly edged around until he had got behind the transitman. Some of the other members of the party came up, and the noise they made seemed to anger the snake more and more as the rattle became louder and more insistent and the ugly head swayed backward and forward with more rapidity.

"Look out for his mate," said the chief. "She's liable to be almost anywhere around."

This was too much for Sam. He kept working backward until the entire party was between him and the snake. The transitman brought his arm up steadily, the automatic just barely showing. The pistol was held steady for a moment, then "crack! crack-crack!" and the snake sprang toward the men.

Though at least forty feet intervened between them and the snake, the party gradually crowded backward. The snake struck the ground ten feet from the stump and lay twisting, coiling and thrashing in the brush.

"Got him, all right," the transitman yelled.

"Well, keep back if you have. You may have only scratched him, and if you get near enough he will strike."

"He's hurt too bad to get into his coil," the transitman answered, "and he can't strike unless he is coiled."

"All the same, you wait. I can't lose time waiting to get another transitman. If he hasn't got all that's coming to him, give him another shot."

"He won't need it," said the transitman. "He's as good as dead now."

"Well, if he's dead he is making a lot of fuss. I don't trust a snake, even if he is dead."

The snake continued to twist and contort, but his efforts gradually grew weaker. In fifteen minutes the glistening body, with its diamond markings along the back, lay still and stretched full length on the damp, black soil of the bayou.

Still the party waited. They could not see, what they afterward discovered, that the transitman had shot the snake's head off as smoothly as if it had been cut with a knife. They knew that the snake might have another flurry in his death struggle, during which he would strike blindly at anything.

Several minutes passed and they were just about on the point of picking up the body when the transitman said: "Look out, there's another one!"

He pointed a little to the left of the dead snake. Sure enough there was another rattler, nearly as large as the

one stretched, on the ground. It slowly made its sinuous way among the brush and dead leaves until it reached the body of the other snake. Here it paused a moment, then ran its head, with a peculiar gliding motion, along the body of the other until it reached the headless, shattered neck. Then it paused, swung its head over the bloody neck, drew back and raised its head six or eight inches above the ground.

Whether some stir in the party alarmed it or whether something else was the cause we do not know, but with a movement too quick for the eye to follow the snake was in a coil and its whirring rattle vibrated on the air, while a peculiar odor was plainly discernible even where the party stood motionless.

The transitman's right hand and arm came up, there was a flash of fire and a sharp crack, and another snake was writhing on the ground.

After a while it, too, ceased struggling and the front and back flag went forward with their range poles and cautiously turned the bodies over. Then it was seen that the heads of both snakes had been shot off.

The conclusion the party reached was that the two snakes were mates. The first one killed measured eight feet in length and carried twenty-one rattles and a button. The second one measured six feet and carried eighteen rattles and a button.

How a Sow Tackled 'Em.

"THAT encounter with rattlers," said the levelman, "reminds me of an experience I had in the Yazoo Delta. We were running preliminary up Silver Creek from Kelso to Silver City for an extension of the Yazoo and Mississippi Valley Railroad. This line ran through big plantations, chiefly devoted to raising cotton, though there were places where the line ran through virgin timber and a good many canebrakes.

"In some of these places it seemed as if all the varmints of the Delta, driven from the cultivated lands, had made their domicil. There were wildcats, bob cats, bear, and sometimes deer, and there were hogs which, originally from some plantation, had gotten away to the timber and had become wild. It was not always safe for a man to meet a bunch of these animals.

"But it was in snakes that this section excelled. There were all sorts, from the little grass or garter snake to the big king or bull snake. Timber and swamp rattlers were numerous, but the majority of the snake population were moccasins. There was the highland, the cotton-mouth, the flat-head, and the diamond-back; all of them vicious, though the flat-head was the most dreaded. Like the copperhead, he is lazy and refuses to get out of the way unless it suits his own sweet will.

"I had been ahead of party, lining out, when I had to force my way through a thicket of briers and brush. As I burst through on the other side I came plump across an old sow and ten half-grown pigs.

"My unceremonious entrance, plump into the middle of her family, made the old lady very angry. With a snort she started for me and I started for a gum-tree, about fifty feet away.

"I had on leather engineering boots that laced clear up to my knees. While they were just the thing for plunging through mud, briers and brush, they were not of any particular assistance to a man who was especially desirous of sprinting.

"I struck out for the gum-tree and the sow come after me. My feet were heavy—each weighed a ton—and my legs seemed stiff and clumsy. It seemed to me as if I couldn't move out of a walk, yet I know now that I was going some.

"Just as I came near the tree and was preparing to make a spring to catch the lower branches, I ran plump into an old stump, which was so rotten that I knocked it over.

From beneath it squirmed a bushel of snakes, mostly moccasins, all of them mad clear through and hissing like a flock of geese, while the fetid odor that arose from the writhing mass was so nauseating that it almost made me faint.

"All this happened in less time than I am taking to tell it. While my right foot was among those snakes, probably less than half a minute, it seemed to be an hour. I could feel blow after blow on my boots and knew the varmints were striking viciously.

"My muscles seemed to be completely paralyzed, and, though I was moving all the time, it seemed as if my limbs refused to obey me. I remember wondering dully if one of those moccasins could reach high enough to strike my knee, and if his fangs would be strong enough to penetrate my thick corduroy trousers.

"My first leap into the air was successful. I swung myself up, something like we used to 'skin the cat' in our school days, and then scrambled to a larger limb.

"I had just settled with my back against the trunk when I saw a snake curled round the limb I was astride of, and not more than six or eight feet away. It flashed through my mind that I had read somewhere that no venomous snakes in North America are tree-climbers, but I wasn't taking any chances on whether they were or not. That snake or I had to leave that tree, and I made up mind it wouldn't be me.

"I rose to my feet, holding onto a limb above me with both hands. Drawing up both legs I lustily kicked the branch on which I had been sitting with both feet. His snakeship was evidently not prepared for this, and off he went, landing plump in the squirming bunch below, just as the old sow and her litter came storming up.

"Now, you can form some idea of the time that elapsed from the fact that I had sprinted fifty or sixty feet to that gum-tree, and the sow was coming with all her speed right behind me. I thought it was hours, but it was only a few minutes.

"Now, I thought that old sow is so mad she won't notice those snakes, and they will make short work of her and her progeny, for they are fighting mad. How am I going to get away from this tree with all those snakes prowling around? I asked.

"Well, the old sow came on and spied the snakes. She gave a peculiar sort of grunt and all the pigs came running up and closed in around her. Then she waded in. Somehow—so quickly that I couldn't see it—she got her paws on a snake, its body in her mouth, and, throwing up her head, she ripped her tusks through that snake from end to end and then tackled another.

"'Go it, sow! Go it, snake!" I yelled. Then I noticed that the ten little piggies were doing just as mama was doing.

"The ground was covered soon with dead snakes, torn into ribbons. I knew that those porkers must have been struck time and again by the snakes, and I sat in the tree, taking in the show and expecting to see those hogs keel over. But they didn't do anything of the kind. They simply trotted away to the bayou and waded into the soft mud, where they wallowed.

"I was just preparing to drop to the ground, and was looking about carefully to see if there wasn't a snake lurking around that the hogs had missed, when the old sow, followed by her family, trotted back toward the tree.

"But if the sow knew that I was in the tree she did not deign to pay any attention to me. That hog and bunch of near hogs deliberately set to work devouring those snakes, leaving only the heads. These they would bite off at the neck. Scared as I was, I noticed that the hogs were careful not to get a snake's head in their mouths.

"I presume the brutes were there for an hour or more. After they had

finished up the snakes they put in their time rooting up the soil for a hundred feet around, apparently determined to hunt out any more reptiles that might be in the vicinity.

"Finally the whole bunch drifted away. After waiting until I was sure they were out of sight and hearing, I swung down out of the tree and 'hot-footed it' for camp.

"The railroad is over a mile west of that spot and makes a long swing at this place. The chief engineer attributed it to boggy, swampy soil which would keep the maintenance-of-way gang busy building up the bank as fast as it would sink, but my real reason was that I hadn't lost any snakes and was not hunting for any.

"The plantation negroes were full of warnings against going into certain brakes on account of their being snake infested, and we found that, as a rule, the negroes were well posted; but there were places where it was impossible to swing the line. In such cases the terror exhibited by our negro axman was really pitiful."

Bull Snakes Don't Like Water.

"I WAS running preliminary," said the chief, "for a line in Louisiana, and a rainy spell set in and the party was tied up in camp for several days. Finally the rains let up, but the ground was like a sponge full of water. The underbrush was so wet the party could not work, so I decided to take a team and drive out along the line, to see what we had for the next twenty miles ahead of us.

"The man who hired the team furnished me with a negro driver, who, he said, knew the country probably better than any other man in the vicinity. We drove for several miles and the line gradually rose on to higher ground. We had gone about ten miles through low rolling swells—not high enough to be called hills, but yet high enough to afford good drainage—and the work would be a succession of light cuts and fills, the material from the cuts being just about enough to make the fills so there would be no waste and no spoil banks.

"Just about noon we came to a stream—so small that its name did not appear on the map, but bank full—probably three hundred feet wide. The water was that black, inky color one notices so frequently in Louisiana streams and bayous. It was running with a pretty strong current and the driver proceeded to enter the stream.

"'Hold on, there,' I said. 'We can't cross here—it's too deep.'

"'That's all right, boss—there's a bridge here.'

"'A bridge? I don't see any bridge or a sign of one. You must be dreaming.'

"'No, I isn't boss. There's a bridge there. I helped to build it. It's about a foot under water and yo' cain't see it.'

"'You are sure the bridge is there?'

"'Cose I is. Dat bridge was put dere to stay.'

"'Well, how do you know it's there now?'

"'Boss, yo' see dat pile of bresh right in de middle of de stream? Well, dat bresh am lodged ag'in' de bridge. Yas, sah.'

"I very seriously doubted, but the negro was so confident that I decided to risk it.

"'All right; go ahead. But if that bridge ain't there and we have to swim for it, I'll make some trouble around here.'

"'Yas, sah, boss, yas, sah. I'se not afraid.'

"We drove into the black swirling tide slowly. While I noticed the horses picked their way carefully, I also noticed that they did not manifest any reluctance, and I had been traveling behind native horses long enough to know that if there was any real danger in such a crossing they would be the first to refuse the trial.

"The water grew deeper as we advanced, and was running about half-

way up to the hubs when I heard the horses hoofs striking on planks, and knew that they had hit the bridge all right. Then I got to worrying, for fear that the flood might have loosened a plank and floated it away, leaving a gap that the horses might step into.

"But the negro driver was perfectly serene and the horses went on, stepping carefully, until the sides of the buggy brushed against the pile of drift. There was a dark flash and something struck the bottom of the buggy with a dull thud. I looked down—and then got my feet up on the seat.

"It was a snake about five feet long. I would have sworn it was a rattler.

"'Mose, don't you see that snake?' I asked.

"'Yas, sah; yas, sah. I sees him. It's a bull snake and he won't hurt yo'.'

"'How do you suppose he got in that brush and why didn't he swim out?'

"'Dese bull snakes, boss, am sho death to rattlers; but dey don't like de water. I s'pose dey cain't swim.'

"'Well, I don't want him in here.'

"'Dat's all right, boss. Jes' yo' sit still an' w'en we gits on dry groun' de snake will leave. He's just as skeered as yo' all."

"At any rate, I kept my feet curled under me. The snake coiled up in a corner under the whip-socket and kept perfectly still. When the horses pulled out on dry land they stopped and shook themselves, and a moment later the buggy rolled out on dry land.

"As if he knew from the sound that we were clear of the water the snake raised his head, swung it from side to side for a minute, and then quietly glided over the side of the buggy and dropped to the ground. The last time I saw him he was making good time into the underbrush.

"When we returned next day the flood had gone down, the bridge and the approaches were two feet out of water, and the pile of brush had disappeared. But I hope I may never again have five minutes of such fear as I had while that snake was in that buggy."

RAILS ON BRIDGE CREEP SEVEN INCHES.

CREEPING rails recently twice locked the draw on the United States bridge extending from Davenport, Iowa, to Government Island over the Mississippi River, and held up traffic while a number of Rock Island workmen tried to fix the trouble. The intense heat and the working loose of a number of bolts are blamed for the state of affairs.

The west rail on the east-bound main track gave the bridge authorities all the trouble. At seven o'clock in the morning it was first noticed when the raft-boat, Orion, whistled to go through up the river. The draw refused to work and a hurried examination was made by those in charge of the bridge.

It was found that one rail which had worked loose had crawled over and effectually locked the draw. The Rock Island Railroad authorities were immediately notified and sent a crew over. The rail was driven back and the draw opened to let the boat through.

About ten o'clock, the Rocky Mountain Limited, east-bound, again pushed the rail out over the draw-span and locked the bridge tightly; and again it was necessary to drive the rail back. For six spans, the rails had crept up and the work of driving the lengths of rail back had to be carried the length of the bridge. It was found that the rail had crept seven and a half inches.

While creeping rails are common enough on railroads, they are guarded against on draw bridges by specially made bolts. This is the first time an accident of the kind has happened here and the railroad construction authorities announce that by taking out two small pieces of rail aggregating about eight inches, they can do away with the trouble.

No damage was done by the projecting rail as it had locked the draw before it could be moved.

It is claimed that the excessive heat caused the trouble.

Out of the Wreckage.

BY DAN DUANE.

Author of "The Thousand-Mile Ticket."

A NOVEL COMPLETE IN THIS NUMBER.

CHAPTER I.

The Clean-Up.

"TWELVE hundred dollars a year? But, Mr. Blackman, that is absurd!" The look on Theodora Hartwell's face was expressive of incredulity, bewilderment, and dismay.

The lawyer shrugged his shoulders.

"I grant you that it is not a very large sum, Miss Hartwell, but, with reasonable economy, it should be sufficient for you to live on. Many men are supporting families on even less.

"It is, indeed, more than I expected to be able to turn over to you. The affairs of your late father were in an extremely involved state when I took hold of them, and, as you must know—"

"Yes, yes," Theodora interrupted, a trifle impatiently, "I understand all that, but twelve hundred dollars a year—a hundred dollars a month—why, it means poverty, actual poverty!

"How can I pay for the upkeep of a house, pay my servants, my living expenses, buy my clothes on such a ridiculous pittance?"

"I am afraid you will find yourself unable to maintain a house or hire servants, Miss Hartwell," Blackman said gravely. "You might manage an apartment, if you were not too particular about the location, but I should strongly advise that you secure accommodations with some respectable family, for the present at least.

"There are many families that would be glad to augment their income. You might also be able to take your meals in the house, unless your preferred to get them outside. Such an arrangement would enable you to live very comfortably within your income."

Theodora laughed.

"Thank you for the suggestion, Mr. Blackman, but the idea hardly appeals to me. A furnished room—boarding-house meals — for *me?* Ridiculous!

"I cannot understand how the estate could have shrunk and dwindled in this way. Of course, I do not doubt the integrity of Mr. Wesley; but are you quite sure that you have overlooked nothing?"

"Absolutely, Miss Hartwell," he curtly replied. "One would almost infer from your tone that you considered that I had been neglectful of your interests."

"I beg your pardon, Mr. Blackman, if I seemed to imply anything of the sort," Theodora hastened to say. "But you understand that this is something of a shock to me. I—I had no suspicion that my father was in financial straits.

"He was always so generous to me that I have never been obliged to consider the question of money at all. I had a liberal allowance and all my bills went directly to him.

"To be suddenly reduced to a yearly income averaging about a tenth of the sum I have been accustomed to spend on my clothes alone—" She broke off with a little helpless gesture. "I don't seem to be able to grasp the significance of it yet."

The lawyer looked at her sympathetically. In her deep mourning she seemed very young and very appealing. She was pale, too, and there were circles under her eyes.

"Mrs. Blackman and I would be very glad to have you come to us for a time," he said awkwardly. "Of course, you will wish to leave here as soon as possible. It is not quite fitting that you should continue to occupy the house now that it is no longer—"

"Thank you, Mr. Blackman, but I think I am able to decide questions of that sort for myself. Mr. Lynn Wesley shall have his house"—bitterly—"without delay. I suppose he is anxious to file it away with the rest of the things that were once my father's."

"You entirely misunderstand him," declared Blackman quickly. "So far from wishing to hurry you, he has been exceedingly kind and considerate from first to last.

"If I were at liberty to tell you to what lengths he has gone to study your convenience, but unfortunately my lips are sealed on the subject.

"However, he desired to say to you that on no account were you to inconvenience yourself. The house is at your service so long as you choose to use it. Still—"

"Still, it would not be seemly for me to accept his offer, you were about to say. You are quite right, Mr. Blackman. I intend to go away before the first of the month."

She rose and walked to the window, where she stood for a long moment looking out at the double stream of vehicles that surged up and down the avenue.

Then she turned and came slowly back to the table.

"I want to thank you for your kind invitation, Mr. Blackman. I understand and appreciate the motives which prompted you to extend it. But—I am sure that I shall do very well by myself. The sooner I get used to being poor, the better it will be for me—I suppose.

"And now, if you will leave those formidable-looking documents with me, I'll try to master them before Monday. I think you said you would come in again, then?"

She held out her hand with a tired smile.

"I have a headache this afternoon and, I'm afraid, I've seemed rather stupid, but I'll do my best to understand them later."

The lawyer got to his feet with alacrity, considerably relieved that she had declined his hospitality.

Not that he did not want to be of assistance to her, but there were ugly features connected with the death of Jasper Hartwell. And Blackman was uncertain as to how his wife would regard his impulsive action in offering their home, even temporarily, as a refuge to Theodora.

Mrs. Blackman held rigid opinions, and the fact that all scandal about the dead railroad magnate had been hushed up, as much as possible, would not weigh with her.

Not even his high social position and unimpeachable ancestry could serve to lighten the black shadow he had brought upon his name and left as his chief legacy to his unfortunate daughter.

It may have been that Theodora divined what the attitude of the lawyer's wife would be toward her, but, at any rate, she felt grateful to Blackman for the kindly thought of her which had led him to extend the invitation.

Such consideration was rare. Not one of all her host of friends and acquaintances had come forward with any such proffer of aid, and Theodora felt their defection only too keenly.

It seemed as if, one and all, they were waiting to see how she would bear up under the burden which had suddenly been cast upon her young shoulders, and more—waiting to hear if all of the supposedly great Hartwell fortune had actually been swallowed up in the catastrophe which had overwhelmed its founder and even temporarily involved the railroad of which he had been the president for nearly twenty years.

Theodora had received many letters and calls of condolence, but somehow the sympathetic phrases and speeches did not ring true.

From being one of the most popular young women in society, she had become all at once, an outsider, an object of half-contemptuous pity.

Until to-day she had believed that enough might be saved out of the wreckage of her father's once considerable fortune to enable her to live as she had always lived.

If she had an income sufficient to maintain the New York house and the great country place in Dalemere, she knew that whatever crimes her father had committed would be speedily forgotten; that when she emerged from the conventional period of mourning she could step back into her old place as a leader of the younger set.

But, now, both town and country house had passed into the possession of Lynn Wesley, her father's chief creditor; the money had all been swept away, except a few thousands; she was face to face with the knowledge that she must give up everything she cared for in the world, and left to sink into poverty and obscurity.

There was only one bright spot in the dark future which loomed before her. If all her friends proved false—if all else failed her—she knew there was one who would not change, to whom her altered prospects would make no difference—Arthur Bromleigh, her cousin.

He, at least, would not be influenced by the mercenary considerations which swayed the others. He loved her as she loved him, truly, wholly, without regard to material things. The thought of him gave her renewed courage.

There was a tender little smile on her lips as she bade David Blackman good-by—a smile which lingered as she sat at her desk and began to write the letter which pride and a strict observance of the correct thing to do demanded she should write, even while she knew that it would be but a meaningless farce.

My dear Arthur:

I received your note this morning telling me that you had just returned to town. Since you do not mention it, I presume you are unaware of the unfortunate circumstances following the death of my father.

There is no need to go into details—they are unpleasant and unnecessary—and, besides, there will be a multitude of people only too anxious to acquaint you with every true and fanciful bit of fact and fiction regarding the whole thing.

Briefly, I find myself possessed of my clothes and other personal belongings, and the magnificent sum of twelve hundred dollars a year—less than enough to buy my shoes and gloves.

Our marriage is, therefore, out of the question. I am writing to release you unconditionally from your engagement. Since no public announcement has been made, no harm has been done and there will be little or no comment.

If you really want to see me, as you say, I shall be here until about the middle of next week—not later—as the house now belongs to Mr. Wesley, and I do not care to remain a day longer than is absolutely necessary.

With very best wishes, and assuring you always of my regard, I am,

Yours affectionately,

Theodora.

She sealed and addressed the envelope, and rang the bell. When a servant answered, she directed him to carry the letter at once to Mr. Bromleigh's club.

It was barely three o'clock. If Bromleigh were at the club, as he usually was during the afternoon, the

letter would be in his hands before four, and by five, at the latest, he would be with her.

She pictured to herself his surprise as he read what she had written. Perhaps he would even be a little angry at the imputation that her loss of fortune could make any difference in their relations to each other.

But she had done the conventional thing in offering him his freedom. It was only right that he should have the opportunity of withdrawing from the engagement, entered into under such different auspices, and he would understand the motives for her action and entirely approve of them, when his resentment had had time to cool.

Gathering up the pile of papers and memoranda the lawyer had left for her perusal, she carried them to her desk and was soon deep in the mysteries of mortgages, bills of sale, notes, deeds and other documents.

But here she was on totally unfamiliar ground. The intricate legal phrases meant nothing to her. Her untrained mind was incapable of grasping the meaning of the long, involved sentences, couched in language which might as well have been Sanskrit, so far as its intelligibility went.

At last she gave up the attempt to understand what it all meant and turned her attention to the memoranda made by Mr. Blackman.

These were more easily comprehended, but the farther she read the more hopeless the situation seemed.

Even to her inexperienced eyes, the story of her father's financial downfall was plain.

The initial losses had apparently been small. It was in an effort to recoup them that Jasper Hartwell had sunk a sum of considerable magnitude.

And then, seemingly panic-stricken at the ease with which his thousands had slipped away from him, he had plunged into one disastrous speculation after another.

His ready resources soon exhausted, he had borrowed from every available source, with every vain struggle weaving new threads for the net the meshes of which were already closing about him.

A long list of tabulated figures showed the notes he had signed; some secured by mortgages on his real property, some with no security at all, these latter representing money advanced by men to whom the word of Jasper Hartwell was as good as another man's bond.

The largest of all—a sum which seemed large even to Theodora—Hartwell had given to a municipal bank and every share of stock he owned in Atlantic and Pacific Railroad had been deposited as collateral for the loan.

The money he had used in an even more desperate venture than any previous one. Its loss followed as a matter of course. Almost immediately thereafter had come the annual meeting of the road's directors.

Unable to regain possession of his hypothecated stock, Hartwell had been deposed from the presidency of the railroad. Lynn Wesley was elected in his stead.

Twenty-four hours after this crowning blow which swept the last prop from under him, Jasper Hartwell was dead by his own hand, leaving his daughter alone in the world and his financial affairs in an almost inextricable tangle.

It was at this juncture that Wesley had come forward. Quietly and without ostentation he had lent his aid to the lawyers of the suicide, laying off the various clamoring creditors and taking over their claims, lifting mortgages, buying up worthless paper; in fine, scotching the snake of scandal which had already lifted its ugly head.

No one except he and David Blackman knew just how much he had done for the dead man who had been his friend. The public, perhaps, suspected, but Theodora had no inkling of the true state of affairs.

Wesley was not the one to make

capital out of his acts. He had expressly stipulated that his part in the settlement of the estate should remain unknown.

So it was that Theodora only knew that everything which had once been her father's had passed into the possession of Lynn Wesley, that he even held Jasper Hartwell's place at the head of the great transcontinental line.

And Theodora Hartwell, long supposed to be one of the richest heiresses in the land, would go to the man she loved with practically nothing.

Nothing? She would take him her love—and she knew that he wanted no more than that!

CHAPTER II.

A Parting—and a Meeting.

"I'M awfully sorry I couldn't get here yesterday, Teddy, but when Pitt brought your letter I was just starting out to keep an appointment, and, as I was already late, I hadn't time even to telephone."

Arthur Bromleigh took the hand Theodora held out to him and pressed it in both of his, before drawing up an armchair to the other side of the fireplace.

Theodora, who had not risen at his entrance, closed the book she had been pretending to read.

"I didn't expect you yesterday, Arthur," she told him, "so you need not apologize. But it is very nice of you to come and see me so soon, nevertheless. You enjoyed your trip?"

"Immensely. Awfully pleasant people, the Campbells. We just loafed along, did what we pleased, saw all the things we wanted to see and none of those we didn't want to see. Never got a letter or newspaper until we reached Cairo.

"Then I—we got the news and I wrote to you at once." He paused an instant, as if waiting for her to speak, but she said nothing.

"I—I was tremendously sorry and all that, you know, Teddy," he added awkwardly.

"Thank you, Arthur." She moved her chair a little, so that her face was in shadow.

There was something in his manner which grated on her, though she did not understand why this should be so.

"Is it quite as bad as you wrote?" he asked in a low tone.

She nodded with an assumption of cheerfulness that she was far from feeling.

"Quite. Everything is gone—swallowed up. Mr. Blackman, the lawyer, has been very painstaking and thorough. Lynn Wesley, the chief, and, I believe, practically the only creditor, has been extremely considerate. But the fact remains that there is nothing left, except a few thousands invested, I am told, in municipal bonds—whatever they may be. Enough to yield an income of about a hundred dollars a month."

"Gad! That's rough on you, Teddy; uncommonly rough on you!"

"Yes, somewhat. But I shall get along, I dare say."

She was watching him closely as he sat, elbows on knees, his chin resting on the palms of his hands, staring into the log fire in the grate.

His face, bronzed by exposure to a tropical sun, wore a gloomy expression; his eyes, half closed, as if to shut out the glare of the fire, persistently refused to meet hers.

Now he glanced quickly at her, and as quickly looked away again.

"Why did you send me such a letter, Teddy?" he asked after a moment. "You haven't stopped caring for me all at once, have you?"

"What has that to do with it?" she parried lightly. "One can't live on love, at least two can't, if the two happen to be you and me."

"It's a mess, isn't it?" He took up the poker and jabbed viciously at the blazing back-log in the grate. "Is it absolutely certain that nothing has

been overlooked, that there aren't any assets tucked away somewhere in a safe-deposit vault?"

Theodora shook her head.

"Mr. Blackman tells me that he really expected to have even less to turn over to me. And from the papers he left for me to look over I am surprised to think there should have been so much as a penny left."

"I'll have to see—I mean—" Bromleigh stopped and then tried again.

"You know, Teddy, that I've only got a small income. We couldn't possibly get along on it, you know. With your tastes and habits—"

"Exactly," she interrupted quietly, although her hands closed tightly one upon the other as they lay in her lap. "That is what I said in my letter, isn't it? I certainly do not expect you to marry me, under the circumstances.

"When we thought that I was to have a large settlement, the thing was all right. It would have been perfectly easy for us to get along on our combined incomes.

"But now—the thing is quite impossible, so there's no use talking about it. I have released you from all obligation, and you are not bound in any way. It is bad enough to be single on nothing a year, but to be married—" She raised her hands expressively.

"I'm sure you won't break your heart about it, Arthur," she went on evenly, "and equally sure that I shall suffer no vital wound. So let's forget all about it, and—"

"But, Teddy, you know I think a lot of you," he protested weakly. "It isn't a case of your releasing me, you know. I want to marry you, of course, just as much as I ever did, more, in fact. But—"

"Yes—'but.' It's a very large 'but,' Arthur. Can't we find a pleasanter subject for discussion? I haven't seen you for nearly four months. Surely we might think of something else to talk about besides this unfortunate affair.

"Did you meet the Patons in Cairo as you expected? I think Mrs. Paton is a delightful woman."

But Bromleigh was plainly uncomfortable and ill at ease. He tried to follow her graceful lead and converse about trivialities, but the attempt was a miserable failure.

It was not long before he rose, muttering something about an engagement which had been made some time before and which he simply must keep.

"I'll think things over and see what I can do, Teddy," he stammered, still avoiding her eyes. "I'll drop in again in a day or two—before you leave here, anyway. And if you want me to do anything in the mean time call up the club."

"Good-by, Arthur," she said.

He moved toward the door, hesitated, looked back, took an uncertain step toward her and hastily bolted from the room.

Theodora did not move until the door had closed behind him. Then a bitter, jarring laugh broke from her lips.

"You, too, Arthur!" she said aloud. "You, too! And I thought you loved me!"

The unexpectedness of the revelation, coming, as it had, as the climax to the series of shocks, almost unnerved her. Not for an instant had she entertained the slightest doubt as to what Bromleigh's attitude would be.

Even when he had not hastened to her side at once she had made excuses for him, told herself that he was probably detained by business and would come as soon as he could!

That he was not spectacularly rich, she knew, but he had a good income, certainly enough to enable him to maintain a wife, even if that wife were accustomed to luxurious and extravagant living.

He could not have afforded to do things in the same magnificent way as Jasper Hartwell, but Theodora had been ready and willing to make some minor sacrifices.

Evidently Bromleigh had not.

The prospect of giving up his sumptuous bachelor quarters and taking an apartment had not appealed to him. He had been eager to marry the popular and beautiful heiress to the Hartwell millions, but Theodora Hartwell, no longer an heiress, did not meet his requirements.

Ever since she could remember he had been devoted to her. "Cousin Arthur," the tall, the handsome, the daring, had been the playmate of her childhood, the hero of her romantic girlish dreams.

She could not recall a time when she had not loved him, nor when he had not professed to love her.

Professed. That was all! For now it was all too clear that he had never loved her.

He had coveted the money and possessions he had believed would one day be hers. As an adjunct to these, she had found favor in his sight. But now that she was poor, now that she could bring him nothing but herself, he wanted none of her.

The stinging lash of the thought fell like the blow of a whip on her quivering pride and brought her to her feet with burning cheeks.

She swept across the room and stood before the great pier-glass between the windows. Was she so unattractive then, so undesirable, that a golden bait was needed to lure and hold a lover?

The reflection the mirror showed her gave the lie to such questions.

Her tall, slender figure was the delight of friends, the despair of enemies of her own sex. Her complexion was flawless, her eyes large and dark, in contrast to the wonderful mass of gold-bronze hair that, coil upon coil, was piled upon her small, proudly set head.

It was not without reason that she had been called the most beautiful woman in New York. And yet, despite her physical loveliness, Arthur Bromleigh did not care for her.

She drew a long breath and turned away from the mirror, her eyes bright with anger and mortification.

She had wondered at the coldness of his greeting, but had at first set it down to the effect of her letter.

That letter! She thanked Heaven that she had written it; that she had offered him the loophole of escape of which he had been so palpably eager to take advantage!

And she blessed the long years of rigorous training which had schooled her to control her features and preserve a smilingly indifferent exterior while her heart was almost breaking.

How strong had been her faith in him, how absolute her trust in his disinterested love — and how utterly he had failed her! Proud, sensitive, high strung, he had cut her to the quick.

What should she do now? How could she face the world? Father, home, fortune, lover—gone—all gone!

All at once the air of the room seemed oppressively heavy, the perfume of the flowers sickening. The stillness of the vast, well-ordered household seemed to close in about her suffocatingly, to grip her like some tangible thing.

She felt a strange dread of the great, silent house, a sudden, indefinable terror of being alone.

Hurrying through the hall, she ran quickly up-stairs, donned her wraps without ringing for her maid, and in five minutes was out upon the street.

It was a chilly afternoon in March. Leaden clouds hid the sky and a raw east wind blew fitfully, scattering a fine, misty rain.

A disagreeable day, with the prospect of a worse night; but Theodora did not mind the inclemency of the weather. The cold rush of wind and rain against her face brought relief from the heat of the shamed and angry blood that was pounding through her veins.

She lifted her head to meet the gusts and walked quickly down the

avenue, her thoughts intent on the perplexing problem that confronted her—the problem of where and how to live.

It was after five o'clock. Darkness was closing over the city. The rain, turned to sleet by the increasing coldness of the wind, formed a thin, glassy coating on the pavements.

When Theodora finally turned to retrace her steps sidewalk and street alike were a glare of ice. Before she realized the condition of the path she missed her footing on the treacherous surface and fell heavily to the ground.

For a moment she lay slightly stunned. Then, as she tried to rise, a strong arm was slipped about her shoulders and she was lifted to her feet as easily as if she had been a child.

"I trust you are not hurt, madam? I—why, it is Miss Hartwell, is it not?"

She turned her head and recognized the man who had come to her assistance.

"Thank you. I think I am quite all right, Mr. Wesley."

She straightened her hat and veil, while he stood at her side.

"You are sure?" he asked in some concern.

"Quite sure. It was stupid of me to fall, but I had been walking close to the wall, and I did not know how slippery the middle of the sidewalk had become."

"The walking is very bad indeed," he assented. "If you have far to go permit me to call a taxicab."

She shook her head.

"No, thank you. I am on my way home, but I need not trouble you further. I shall do very well alone. Thank you for your kindness." She inclined her head slightly and moved away from him.

"Take care!" He flung out his arm and caught her just in time to prevent a repetition of her accident.

"You see, Miss Hartwell? It really is not safe for you to attempt to walk without assistance. Please take my arm. We shall find a cab of some sort at the corner."

"It is not necessary, Mr. Wesley," objected Theodora. "I am quite able to manage by myself."

"I insist," he said quietly, but somewhat firmly.

Without further demur she laid her hand on his arm and he piloted her to the cross-street, where he hailed a passing taxicab for her.

"I had intended to do myself the honor of calling on you this afternoon, Miss Hartwell, but was prevented," he said, holding the door open for an instant. "Will you receive me this evening?"

She looked at him in some surprise.

"Do you not think it would be better for you to see Mr. Blackman?" she asked. "I really know very little about business, and have left everything to him."

"Pardon me, but I think this matter can hardly be delegated to Mr. Blackman, in spite of his obvious ability," he remarked, with a grave smile. "If you have no objection I should like to talk to *you!*"

She hesitated, uncertain what answer to make. Why should Lynn Wesley want to see her? She had met him many times, but their greetings had been limited to ordinary and meaningless civilities.

He had been her father's friend. To her he had always seemed quite middle-aged—old almost. Now as she looked at him standing by the cab door, waiting patiently for her decision, she realized that he was not more than thirty-eight or nine, although the habitual gravity of his expression and manner gave the erroneous impression of greater age.

His hair, too, thick and dark, was quite gray at the temples; but his face was unlined, save at the corners of his deep-set eyes, where a few fine wrinkles were barely visible.

It was the first time she had ever looked at him fairly, the first time she

had ever been sufficiently interested in the man to care to observe him.

He bore her scrutiny quietly, standing bareheaded in the chill rain and wind, his face slightly turned from her, so that the finely chiseled nose and mouth, the strong, square jaw were outlined in profile.

"May I not come, Miss Hartwell?" He bent toward her, and as she lifted her puzzled eyes a sudden light leaped into his. She looked quickly away.

"I cannot imagine why you should want to talk to me," she said slowly. "But if you really wish it—"

"I do wish it"—earnestly.

"Very well. At half past eight then." She bowed in token of dismissal.

Closing the cab door, he stood back, while the vehicle jerked forward and rolled rapidly up-town.

CHAPTER III.

A Business Proposition.

BEFORE she had gone half a block Theodora was beginning to wonder why she had allowed herself to be influenced into consenting to receive Lynn Wesley. Wonder speedily merged into vexation.

What could he have to say to her that could possibly concern her? She could not understand why she had been so foolish as to grant his request for a personal interview, nor why she had not insisted on his accepting her original suggestion that he see her lawyer.

A self-made man, of unknown or obscure parentage, Wesley, notwithstanding his great wealth, was distinctly not "in society." By the members of the younger set he was looked upon as a person who had sprung from nothing and who was not to be admitted to the sacred precincts of "the best houses."

His great machine-shops and boiler-works, erected on the outskirts of Dalemere, had raised a storm of protest among the residents of that exclusive summer colony, who, finding themselves powerless to prevent what they declared to be a desecration of the beautiful town, had united in condemning the man who was responsible for the introduction of commerce in a residential community.

Not that Wesley made any attempt to ingratiate himself with the social arbiters. He was apparently engrossed in making an enviable place for himself in the world of railroad men and in building up the business which every year added to his already enormous fortune.

Men invariably liked him and spoke well of him, but among women he did not appear to advantage. This was a sin in their eyes; but that he did not seem to care whether they liked him or not was to add insult to injury.

And since it had transpired that he was Jasper Hartwell's chief creditor, Theodora had felt even less kindly toward him than formerly.

She had never regarded him as her social equal. Though he was on terms of seeming intimacy with her father, she had been accustomed to treat him with the same aloofness and civility she accorded to others whose acquaintance she deemed undesirable.

To her he was simply a person to whom courtesy required her to speak when she could not avoid meeting him, and she had never paid him sufficient attention to know whether he was interesting or otherwise.

Now that he had practically forced himself on her notice, she grudgingly admitted that he was presentable enough, well-dressed, good-looking, and with a certain charm of manner. The note which she had received from him immediately after the death of her father had certainly betrayed no lack of breeding.

But, after all, he was not of her world; they had nothing in common. As president of the Atlantic and Pacific Railroad he might pass many doors that hitherto had been closed to

him; but, Theodora reflected with a sharp pang, she was no longer numbered among those whose acceptance or rejection of a social aspirant counted.

Yet it would have gratified her in some small measure to have been able to assure herself in the dark days to come that her last act as a member of the younger set, and as its former acknowledged leader, she had set the seal of her disapproval on the man who had taken her father's place in the railroad world.

She wanted nothing to do with him. She was annoyed with herself that she had allowed him to think she had even considered receiving him.

Perhaps he but wanted to express in person his sympathy for her misfortune; it was quite likely that such was the case. There was nothing else she could think of that he could have to speak of.

Since she had been foolish, the simplest way out of it would be to direct the footman to say that she was suddenly indisposed. And it was with the intention of giving the order that she dismissed the whole matter from her mind.

On her arrival at the house she found a letter which had come in the last mail. The handwriting was familiar, but she could not recollect just where she had seen it before.

Unfolding the closely written sheets, she turned to the last page. It was signed:

Your affectionate aunt,
LYDIA HARTWELL-HARPELL.

It was some years since she had seen her father's only sister; but she had a vivid mental picture of a tall, angular figure, garbed in rustling black silk, a sharp-featured face, with small, piercing black eyes, and a straight, thin-lipped mouth.

The eyes and lips had both expressed unqualified disapproval of Jasper Hartwell, his home, his daughter, his friends, and everything that was his. Theodora could almost hear the high-pitched voice raised in vigorous denunciation of the "goings-on."

She couldn't help smiling at these recollections as she started to read the letter:

MY DEAR NIECE DORA:

I should have written to you before, but I thought it wiser to give you time to contemplate the pass to which your sinful way of living has brought you.

I shall not speak ill of the dead; but had your misguided father taken my advice and put his establishment in a sane and proper manner, the family would not have been disgraced by his wickedness. Our lives are not our own to take; and when he presumed to usurp the prerogative of a greater power and remove himself from this world before his time, he committed an act for which he will assuredly be judged as he fully deserves.

However, it is not to speak of this that I now communicate with you. I understand that you have been obliged to give up your house (a thing which should have been done long ago, and then all this trouble would have been avoided; but I suppose your constitutional selfishness would not permit you to contemplate giving up your pomps and vanities, even to save your father's sinful soul) and that you are reduced to poverty.

It is my intention to offer you a home with me, provided you show yourself worthy of such liberality on my part. It is high time you were surrounded by proper and refining influences. I feel it my duty to give you my protection and the shelter of my house.

In return for this favor I shall expect you to oversee some of the servants, read to me for an hour daily, and accompany me upon my walks and drives and errands of mercy among the poor.

Such duties will be most beneficial to you. I think that, in time, companionship with me, with my example as a guide, will assist you to conquer pride and vanity—your besetting sins.

You are not the sort of young person I should voluntarily take as an inmate of my household; but I see my duty clearly, and I expect to do the right thing by my dead brother's child.

I shall come to see you on Saturday, and shall expect you to be prepared to return with me. Remember, humility

and obedience are great virtues and should be assiduously cultivated. I do not altogether despair of you, however little encouragement you have given me in the past to hope that you may turn out well.

Your affectionate aunt,
LYDIA HARTWELL-HARPELL.

For a moment after she had finished reading the extraordinary letter Theodora was too amazed to move. Angry and resentful, her first impulse was to tear the sheets and throw them into the fire.

But her sense of humor came to the rescue.

Lying back in her chair, she laughed until the tears rolled down her cheeks.

Once she had been in her aunt's house—a great, gloomy mansion filled with heavy, ugly furniture and decorated in atrocious taste. The memory of the horse-hair sofas and chairs, hair-wreaths, and Rogers groups in the drawing-room made her shudder.

And this was the place where she was invited to make her future home!

"I'd rather scrub for a living?" she said to herself indignantly. "If the house didn't drive me mad in a week, Aunt Lydia would. Why, I might just as well bury myself alive!"

The bare idea of constant association with Mrs. Hartwell-Harpell was appalling. Once a week the old lady gave a tea to her intimate friends—a few withered and ancient creatures as warped and acidulous as herself. That was the only diversion ever permitted at Harpell House.

Theaters were sinful; cards, an invention of the devil; dancing, wicked; motoring, anathema!

Mrs. Hartwell-Harpell considered that reading, a daily drive or walk, morning and evening prayers, and church three times on Sunday, with the regular Wednesday tea-party, were sufficient recreation for any right-minded person; nor could any one have induced her to believe otherwise.

She was a Puritan of the Puritans, with a few rigid additions of her own to their uncompromising code. She had never approved of her brother. That his daughter should have been allowed to grow up amid the lures of the world, the flesh, and the devil had been a source of many wordy battles between them, culminating in an estrangement that lasted for years.

How the stern old lady had ever brought herself to offer a home to the girl who embodied all those qualities which she looked upon in pious horror was a mystery explained only by her strict sense of duty and her inherent conviction that her own example would benefit the most hardened sinner.

"And she writes as if she actually believed I would jump at the chance!" said Theodora disdainfully. "When she comes to-morrow I think she will be surprised at my lack of enthusiasm!"

Nevertheless, despite the contemptuous scorn with which Theodora treated the suggestion that she make her home at Harpell House, the assurance that, in the event of her doing so, she would have no need to worry about the necessities of life was a temptation.

The more she thought of how she was going to get along on twelve hundred dollars a year, the more impossible such an achievement seemed. And yet, to give up everything that made life worth living and take up the dreary routine of her aunt's household would be intolerable.

Would it not be better to secure a position somewhere and add to her income in that way? But what could she do?

Born and reared in an atmosphere of luxurious idleness, waited on by servants, incapable of performing the slightest service for herself, how could she hope to be of assistance to any one in any kind of work whatsoever?

She had never been especially fond of her father. Jasper Hartwell had not been the sort of man to inspire any more intimate emotion than respect tinged with awe; but now she began to feel markedly resentful toward him.

All her life he had impressed on her

the belief that money was of no consequence, and that she would always have more than she could possibly spend.

Consequently, in leaving her with so pitifully inadequate a sum, he had deceived her cruelly.

All through dinner she sat silent, trying to find some way of escape from the two courses open to her.

Either she must live on twelve hundred dollars a year — a practical impossibility for her—or she must accept the doubtful hospitality of her aunt and resign herself to a life of humdrum monotony that would drive her to desperation.

Whichever way she decided, she doomed herself to a thoroughly miserable existence; but the decision must be made, and at once.

She could not remain in Lynn Wesley's house after the first of the month, now less than a week off. The servants had been paid up to the following Friday. After that she would be homeless.

Of Arthur Bromleigh she dared not trust herself to think. She must keep her mind as active as possible; she must reason out everything clearly. The thought of how she had been treated by the man to whom she had pinned her faith set her trembling in uncontrollable agitation.

She was still striving to reach a conclusion when Lynn Wesley was announced. She rose to meet him with a feeling of irritation, because she had forgotten to give instructions that he was not to be admitted.

She did not offer to shake hands. If he noticed the slight, he gave no sign. He bowed gravely as he took the chair she indicated.

"I hope you are feeling no ill effects from your fall?" he inquired.

"Thank you, only a slight headache," she answered. "But I am going to ask you to state your business as briefly as possible, Mr. Wesley. I am leaving here very soon — possibly to-morrow or the day after—and as I have numberless things to attend to, I am rather pressed for time."

Her words and manner were formal, but she smiled faintly as she spoke.

"I had dared to hope that possibly I might be able to persuade you not to leave at all, Miss Hartwell," he said quietly.

"Mr. Wesley!" She spoke sharply and in haughty surprise. "I do not understand you!"

"No, you would not. But may I explain?" He did not wait for her reply, but went on, speaking slowly, evenly, without lifting his eyes to hers.

"This is not the time nor the way I should have chosen to speak to you, Miss Hartwell; but it is the only opportunity I have had, or, perhaps, will have. For months I have intended to ask you to listen to me; but for many reasons I have hesitated.

"Lately I have thought that you tried to avoid me whenever you could.

"However, there is just one way in which I can find out whether or not you will marry me—and that is to ask you. Will you be my wife?"

Stupefied with amazement, Theodora sat staring at him as if bereft of the power of speech. Could she have heard aright? Was it possible that this man — almost a stranger — was actually asking her to marry him? It was impossible! She must have misunderstood him.

What was he saying now? She must listen.

"I realize that there is little about a man like me to attract a woman like you. I am not used to the ways of society; I do not shine in a drawing-room. I'm only a commonplace sort of chap; but if you will marry me you shall have everything in the world you want. You shall be absolutely your own mistress; go where you please; live where you like.

"There are all those big, empty houses of mine. They are like me—lonely. They need a woman to make them homes instead of four walls.

And you are the only woman I have ever wanted to see in them—the only woman I ever wanted to make my wife.

"It may seem in rather questionable taste for me to mention it, Miss Hartwell, but I am very rich. I have more money than I know what to do with, and I want to share it with you. I want to share everything I have with you. It has been the dream of my life, ever since the day I first saw you, to win you for myself.

"I know you've undergone a severe trial lately, and that others, perhaps worse, are before you. You're all alone; and you are too young, too fine, too tender to face the world by yourself.

"Will you marry me and let me stand by you—let me take care of you and try to make me happy? Perhaps all this sounds absurd to you—it must. But won't you think—won't you consider before you say no to me?"

Theodora scarcely heard the last few sentences. Lying back in her chair, her hand over her eyes, her mind moved with lightning rapidity.

This man was in earnest—he was asking her to marry him! All doubt of his sincerity was swept away.

As the wife of Lynn Wesley, multimillionaire, what might she not do? In a flash she saw herself reinstated in her old place in society with the world at her feet. She could have jewels, motors, yachts, houses—anything and everything she wanted!

What a triumph! What a wonderful triumph it would be! How she could laugh at those fair-weather friends who had deserted her in her trouble; how she could repay every slight and insult that had been offered her!

She almost laughed aloud. Mistress of Lynn Wesley's millions! Wealthier far than she had ever dreamed of being!

And Arthur Bromleigh. What of him? She shivered slightly. What would he think? What would he say?

She opened her eyes to meet the steady gaze of Lynn Wesley.

"Have I offended you, Miss Hartwell?" he asked gently. "Have I been too abrupt? I am sorry. I—"

"No," she interrupted, "I am not offended. I confess I am surprised, Mr. Wesley. At the risk of being quite unoriginal I am going to tell you that I never suspected for a moment that—that you ever gave me a thought."

"I do not want to hurry you," he told her. "I am a pretty crude fellow, you see. I'm not used to women, and I'm afraid I was awkward and boorish. I'm accustomed to talking business with men, Miss Hartwell—I'm accustomed to dealing only with men. Will you forgive me for—"

"Please don't apologize," she interposed. "I think I understand what you would say. Will you wait a moment and let me consider?"

She rose and went swiftly to the window where she stood for a long time without moving. When she finally turned to him again it was with a face white as chalk and strange, glittering eyes.

"You have asked me a question, Mr. Wesley," she said in measured tones. "My answer is—yes—on one condition."

"And that is?" There was an eager tremble in his voice as he rose and faced her.

"That we can be married to-morrow morning and sail at once for Europe!"

"To-morrow morning? You—you mean that you will marry me to-morrow?"

"If you will take me on board the steamer at once and allow no hint of the marriage to be made public until after we are gone."

His face was white and his hands were tightly clenched at his sides. He took a quick step toward her, then stopped abruptly as she went on:

"I can be ready at ten o'clock if that will suit you. There is a liner

sailing at noon." Her manner was perfectly cool and businesslike.

"Perfectly," he said, bowing. "You will wish to take your maid with you?"

"Yes. We understand each other then? It is a bargain?" There was a subtle inflection in her voice which caused him to look at her keenly for a moment.

"I think so," he agreed. "At ten o'clock, then?"

"Exactly." Her white face was twisted into a curious little smile. "And even if you are accustomed to talking business only with men and dealing exclusively with them, you—you conducted this interview very well, I think. Is—is there anything else?"

The speech jarred upon him strangely; but he had already noticed her nervous, overwrought manner.

"Nothing, except that with your permission I shall give my attorney instructions to see that everything in the house remains exactly as it is until our return, when you can make such changes as you see fit.

"And, before I go, is there anything that you wish me to do for you—any commissions you want executed—any way at all in which I can be of service?"

"No; oh, no; thank you. Only—will you please go quickly? I—I think I am a little tired—and—and upset." Her voice trailed off into silence.

Without another word Lynn Wesley took his leave. Theodora, standing rigid where he had left her, stared blankly at the wall for a moment.

Then she staggered, clutched at a chair for support, and burst into a peal of wild, hysterical laughter.

CHAPTER IV.

A Way Out.

AMID all the hurry and confusion which followed the announcement of her unexpected change of plans, Theodora moved serenely, giving orders to her maid about her wardrobe and directions to the housekeeper regarding the management of the establishment during her absence.

But when she found herself alone in her room her forced calm gave way.

It was very late, but she was not in the least sleepy; on the contrary, every sense was alert. Springing out of bed as soon as her maid had left the room, she switched on the electric lights, threw a dressing-gown about her shoulders, and flung herself down in an easy-chair before the fire in her sitting-room.

Lynn Wesley's proposal of marriage had come like a bolt out of a clear sky. Her first impulse had been to treat it as a piece of colossal impertinence.

But immediately she had perceived that he was offering her a way out—a way of escape from poverty and a weapon with which to revenge herself upon all those who had slighted or ignored her as soon as the full extent of the catastrophe which had overtaken her father became known.

To be in a position to settle in full for every wound her pride had received would be worth much to her. To be relieved from the harrowing cares and anxieties entailed by poverty would be worth more. But, most of all, although she did not admit it, even to herself, was the desire to show Arthur Bromleigh how little she cared for his defection.

Smarting under the humiliation involved in the knowledge that he had practically washed his hands of her, fearful lest, despite her careful assumption of placid indifference, she had given him an inkling of the truth and allowed him to guess that she had expected him to carry on the engagement, she had decided on an immediate marriage with Lynn Wesley as a solution of all her difficulties.

No one would suspect that the affair had been conducted with such haste. The general idea would prevail

that there had been some previous understanding, kept secret because of private reasons and not made public at all because of the death of Jasper Hartwell.

And Arthur Bromleigh would be left with the impression that he had been duped and made to appear a fool, instead, as he no doubt confidently believed, a very astute young man who had gotten himself out of an embarrassing entanglement with commendable skill. Her friends would be agog with the news that Theodora Hartwell, the fallen star, whose disappearance from the social firmament had excited some pity and sympathy, but more gratification, would rise again more resplendent than ever.

There would be a general rush among the lesser planets to recover ground lost during the temporary eclipse; a wild scurrying to ingratiate themselves with the principal luminary. Oh, it would be wonderful!

Theodora thrilled with exultation as she thought how entirely the game would be in her hands, how absolute and complete would be her triumph. The only drawback was Lynn Wesley himself; but she never doubted her ability to manage him.

Whether his habitual taciturnity was to be accounted for by strength of character or simply as a cloak assumed for the purpose of hiding possibly gaucheries, she did not stop to consider.

He was simple, unassertive, and, by his own admission, unaccustomed to the ways and wiles of the gentler sex. He was even crude enough to propose marriage to a woman to whom he had spoken scarcely a dozen times.

And it was this same unsophistication, if such it might be termed, that had given Theodora the sudden inspiration to interpret his offer after her own fashion—as a strictly business proposition—and accept it on that basis.

The question of whether or not she was acting fairly by the man she was going to marry did not enter into her calculations.

She considered him not at all. She had been driven by force of circumstances into a corner, and, like an animal at bay, the instinct of self-preservation was uppermost and all powerful.

Nor did she consciously mean to be unscrupulous when she determined to use Lynn Wesley for her own purposes, without making any adequate return for the service she expected him to render her. He was simply a means to an end. The ethics of the matter were entirely lost.

He had not said that he loved her. Such a statement would have been absurd on the face of it, considering how limited had been their intercourse; but it did not need extraordinary discernment to see that her beauty made a strong appeal to him.

His effort at self-control and repression had been plain. He wanted to marry her—yes; but what he coveted was possession. The real woman—the heart, the brain, the soul—he did not, could not know.

Nor had he asked for her love. He had told her that if she married him she could live where she pleased, as she pleased, that she would be absolutely her own mistress. Was not such a statement open to misconstruction? Could she be blamed if she construed his words otherwise than he had meant them?

If her understanding of their "bargain"—she laughed a little maliciously to herself as she remembered how craftily she had interpolated the word, and how she had repeated his own statement that he was "used to talking business with men"—differed materially from his, was that her fault?

He had told her that he wanted a mistress for those great, lonely houses of his. Well, he should have one. And he should also be allowed to share his fortune with her, so long as he so ardently desired to do so.

It was eminently fair that he

should do so, as his wealth had lately been augmented by all that had once been Jasper Hartwell's.

And who could say whether his pretended friendship for the dead railroad magnate had been entirely disinterested? Was it not possible—nay, probable—that some chicanery had been employed in the transactions which had resulted so favorably to the one and so disastrously to the other?

The supposition seemed plausible, the more so since Wesley was now president of the Atlantic and Pacific and that his election in her father's stead had been the climax to all the other misfortunes.

At any rate, Theodora told herself, Wesley had not scrupled to take advantage of the position in which she was placed. She thought she could guess the reasons which had formerly kept him from speaking to her. He had known only too well what her answer would be had he asked her to marry him while her father was still alive and prospering.

But when she was reduced to poverty he had immediately come forward and dangled the tempting bait of his wealth before her eyes, confidently believing that the lure would be too great for her power of resistance and that he would win her, at the same time securing a firm footing in the society from which he had hitherto been barred. The name of Hartwell would carry him where that of Wesley had been but a barrier.

Was this the action of an honorable, upright man? And would he, after playing such a questionable part himself, have any right to complain if he in turn were tricked?

And it would not really be a trick. The way in which he had worded his proposal left the way open for just such an interpretation of his words as she had determined to put upon them.

Theodora laughed excitedly as she pictured herself, girt in an armor of icy reserve, repulsing all his advances, keeping him at arms' length, giving him tacitly to understand that she was merely to be looked at and admired from a distance, as the figurehead of his household. And that while she assumed his name and the management of that household he acquired no rights whatsoever in her.

She did not anticipate the slightest difficulty in carrying out this program. He regarded her with reverence and awe, as something to be tenderly cared for and cherished, yet infinitely above him; and she meant to take care that nothing should happen between them to change his point of view.

The clock on the mantel struck four. With a start Theodora realized that if she were to get any rest at all before the time came to prepare for her wedding she must go to bed at once.

The fire had died down and the room was in shadow, except where a silver shaft of moonlight lay broadly across the rug. She groped her way through the semidarkness into her bedroom. Dropping her dressing-gown on a chair she reached up to turn off the electric light she had left burning beside the bed.

With her hand upon the switch she paused, while the color slowly ebbed from her cheeks and lips.

On a little stand, directly in front of her, was a photograph of Arthur Bromleigh, handsome and debonair, mounted in a heavy silver frame. It was a splendid likeness. The lens had caught and held the engagingly frank expression, the tenderness of gaze that was, perhaps, Bromleigh's chief charm.

The face had been turned full toward the camera in such a way as to conceal the weakness of his chin. All that was best in the man showed in the presentment; and, as Theodora looked, it seemed to her as if the smile faded and a look of sadness took its place while the eyes which held hers were filled with reproach.

In an instant the illusion was gone;

but with it had disappeared her jubilant mood of self-congratulation. She was conscious of a sense of bitter loss, a feeling as if all that she held most dear had been taken from her.

All unworthy though she knew him to be, she loved him. By her own act she was erecting an insurmountable barrier between them.

But it was too late to turn back now, even if she wished. She told herself fiercely that she did not — that she would die before she would let him know how much she cared for him and how deeply his conduct had wounded her. She had set her feet on the path of ambition, and she would go forward, no matter what the cost.

She took the photograph from the frame and turned to throw it into the fire. Then, as the light fell full on the smiling, upturned face, she caught her breath suddenly in a little dry sob; her hands fell to her sides and she stood with closed eyes and quivering lips.

But only for a moment did emotion master her. Unlocking a small drawer in her desk, she thrust the photograph under a pile of letters, closed the drawer again, and turned the key in the lock.

But she could not put away the flood of memories that swept over her; and when the pearl dawn flushed the sky she rose and went to the window and watched the rosy colors mount higher and higher.

She had fought and won the battle with love. There should be no more tears, no more useless repinings, no more sighing for the unattainable.

She was herself again, calm, serene, unruffled. On the lovely face there was no trace of the storm of emotion that had so nearly overwhelmed her and brought disaster to her carefully planned future.

And so she sat and watched the beauty of the splendid sunrise. The rim of the golden orb slowly rose over the edge of the horizon and the sleeping world awoke.

When the maid came to awake her mistress, Theodora was still sitting there motionless, the glory of the sunlight in her burnished hair and a dull ache in her heart.

CHAPTER V.

For Better—or Worse?

"FOR better, for worse; for richer, for poorer; in sickness and in health, until death us do part."

Mechanically Theodora repeated the solemn words that bound her to Lynn Wesley. Her own voice sounded strangely in her ears, and the deep, quiet tones of the man at her side seemed to come from a long way off.

Through the stained glass windows of the little church the morning sunlight shone, weaving a multicolored pattern on the carpet of the aisle and touching the altar with vivid, prismatic splashes.

The back of the church was in shadow; but she was dimly conscious that in one of the rear pews the witnesses were sitting. How queer it all seemed!

How did it happen that she, Theodora Hartwell, who until yesterday had believed herself the promised bride of Arthur Bromleigh, was standing before a minister and giving herself to a man whom she hardly knew, a man in whom she had never felt even mildly interested?

Imagination's wildest flight could never have conjured up a more improbable situation!

The lips that Lynn Wesley kissed were rigid as stone; the congratulations of the minister fell upon ears that failed to grasp the import of his words.

As in a dream, Theodora turned and walked down the aisle, her cold little hand resting on the arm of her husband.

From the rearmost pew the sexton and his wife came out to congratulate the bride who scarcely noticed their presence.

Wesley cordially grasped the wrinkled hands held out to him, and when his clasp loosened something bright and golden glittered in the palms of the aged pair.

In the vestry Theodora affixed her signature to the entry in the register. The thought flashed through her mind that she was writing "Theodora Lucia Hartwell" for the last time. Hereafter her name would end differently. She had practised the new signature many times. It looked well in her dashing, angular handwriting.

"Theodora Hartwell Bromleigh"—why, no—that was not it! Never would she sign that name. "Wesley." That was right. She was Theodora Hartwell Wesley now. How very incomprehensible!

"You are pale, dear. I'm afraid all this haste and excitement has been too much for you." The low voice of her husband seemed to pierce the mist that shrouded her brain. She looked at him for a moment in half dazed surprise. Then she pulled herself together and forced an answer from her cold lips.

"I am tired, that is all. There was so much to be done last night, so many things to think of that I did not get very much sleep. I shall be all right presently, thank you, Mr. Wesley."

He turned to speak to the minister, and then took her arm and led her out to the waiting automobile. She put her foot on the step, hesitated, seemed about to draw back, and stepped within.

He took his place beside her, closed the door, and the car started.

"You called me 'Mr. Wesley' just now," he said presently. "My first name is 'Lynn.' Do you suppose you could manage it?"

"Lynn," she repeated obediently. "Lynn. Yes, I think so."

"Thank you. I—I like the way you say it. It is a good enough name, as names go, but it never sounded so pleasant to me before."

He was gazing at her with a tender light in his deep-set gray eyes. But she did not look at him; her head was turned away and she was staring fixedly out of the window.

Once or twice he spoke to her; but she did not answer, nor did she once look at him during the trip to the dock in Hoboken where her maid was waiting with the hand luggage.

If Wesley were puzzled or annoyed by her silence, he made no comment. Only once a slight frown contracted his heavy brows. It vanished immediately as he saw how pale and tired-looking was the beautiful averted face.

He had engaged the finest suite on board the big liner; but Theodora betrayed no sign of appreciation or pleasure at the luxurious appointments of the rooms. She did stoop to inhale the perfume of one of the great bunches of roses which were tastefully arranged in tall vases; but beyond a perfunctory word of admiration she said nothing.

Wesley's eyes followed her graceful figure as she moved about the sitting-room, giving directions to the maid, who finally finished her duties and disappeared to find her own quarters.

The last hoarse whistle screamed its farewell salute; the shores of Manhattan and New Jersey seemed to be slipping swiftly by, and the great vessel took her majestic course down the river.

"Theodora!"

She looked up, to find her husband standing at her elbow.

"Yes?" she replied indifferently.

"Theodora!" he said again. "My wife! I wonder if you can understand how wonderful it seems to me? I don't quite realize it yet. I seem unable to comprehend the amazing fact that you have given yourself to me—that we are married—that we are going away together, alone. You are my wife!" His voice shook slightly.

"Theodora, do you know that for years I have dreamed of this; dreamed day and night, and tried to put the dream away from me as a wild phantasm that could never come true? And

now it has come true! I can't believe it. You are mine—all mine—to have and to hold for the rest of my life! My wife!"

The words rushed from his lips as swiftly as if he had suddenly loosed the reins of self-control and given free vent to the surging emotion which swayed him.

Theodora drew away from him with a shudder.

The next instant his arms crushed her against his breast. He caressed her hair, her eyes, her throat, his lips seeking hers in an eager kiss.

She tore herself free and faced him with flaming eyes.

"How dare you?" she flung at him fiercely. "How dare you touch me? Who are you that you should presume to lay hands upon me?"

She was trembling from head to foot with anger and outraged pride.

"How dare I touch my wife?" He spoke very slowly, as if weighing every word. "I'm afraid I don't quite understand you."

"Then let me make my meaning plain, quite plain, that there may be no misunderstanding on your part in the future."

The fit of trembling had passed, but her eyes still glittered.

"I supposed that you were a gentleman, or at least that you had the instincts of one; but I see that I gave you credit for qualities you do not possess," she went on. "I am not an animal, to be caressed at your pleasure. Do you imagine that because I have honored you by going through the wedding ceremony with you that you are at liberty to do with me as you wish—that you can indulge in familiarity with me? Understand once and for all, Mr. Wesley, that I will tolerate nothing of the sort. Never dare to touch me again!"

"Indeed!" he said very softly. "And may I ask what were your reasons for marrying me if you feel that way toward me?"

"Certainly. I married you because you had what I needed and lacked—money. You asked me to be your wife because only through such a marriage could you gain admittance to the society you were ambitious to enter. We could be of mutual service to each other. It was a perfectly fair and reasonable business arrangement and agreed upon as such—expressly agreed upon by both of us. As long as it remains upon that basis I dare say that we shall do very well.

"But"—and a ring of contemptuous disgust crept into her voice—"did you dream that I would allow you to touch me—that I would permit any such exhibition as that which you have just given? If you did, Mr. Wesley, you have made a very serious mistake!"

"Yes," he said. Although his voice was perfectly steady, his face looked gray and drawn. "You are right. I *have* made a mistake; not in myself, but in you. My acquaintance with your sex has unfortunately been very limited. I come from plain people, as you have rightly observed, and among them a wife is a wife.

"I had heard sometimes of those women who were willing to marry without love or even respect and liking; but I had never met one. All the women whom I knew were good wives and good mothers. When I met you I dreamed of your being a wife in every sense of the word. My mistake lay in imagining that you could be capable of feeling love for me. I did not suppose that you cared for me as I cared for you; but I thought perhaps that in time I might teach you to love me."

"Love!" Her scornful laughter rang out. "You call what you offer me love? Was there talk of love between us yesterday? Did you ask me to marry you because you loved me?" She laughed again—a high, metallic laugh that had no mirth in it.

"No!" she went on. "But you love me now, when you have discovered that perhaps I might be more than a

mere stepping-stone by which you could climb into society!" Of a sudden she leaned toward him, her face convulsed with anger.

"Let me tell you that if you ever lay so much as a finger upon me again I shall defend myself!" she said with marked determination.

"I hardly think you will be driven to that," he replied. He faced her calmly and unflinchingly. Only his eyes had narrowed to two points of gray fire and gleamed with a dangerous light.

"I regret that you did not make your position clear before we sailed," Wesley continued slowly. "As it is, I am unable to return to the city and must make the voyage with you; but I shall endeavor to inflict you with as little as possible of my society."

There was a knock on the door. "Come in," he added quietly.

The maid entered. Wesley turned and passed behind her as she crossed the room.

"If you wish anything, Theodora, I am at your service. I think it will be better for you to rest now. Send for me if you want me. Should I not be in my room, Mr. Bassett will tell your maid where I can be found."

Before she could frame an answer he was gone.

CHAPTER VI.

"Teddy—Is It You?"

WITH her brain in a whirl Theodora flung herself on her bed. The long emotional strain to which she had been subjected, culminating in her frenzied outburst against Wesley, had left her weak and shaken. She was worn out, physically and mentally, and her head throbbed painfully.

The attempt made by her husband to personalize their relations had roused her to a pitch of anger of which she would not have believed herself capable.

His unexpected declaration of love had filled her with resentment and disgust.

She had expected him to be shy, diffident, cautious in his advances, and his outburst of passion had found her totally unprepared. Even the tenseness of his voice when he had called her his wife and spoken of his wonder that she should have consented to marry him had conveyed no warning to her.

She had been taken unawares. He had caught her in his arms and kissed her before she realized that she had to deal with a man of a type entirely different from her preconceived notion. With a gesture of loathing she passed her handkerchief over her lips as if to wipe away the insult of his kiss. That he should have dared!

Had he, then, thought her like those women of his own class whose virtues he lauded—those dull, commonplace creatures who lived but to rear children and minister to the comfort of their lords and masters? Had he expected that she would docilely submit to whatever indignity he chose to offer her?

If he had cherished any such ridiculous notion she had certainly dispelled it. His face, more than his words, had told her that he would not soon forget the lesson she had read him.

But what would he do now? How would he meet her again? A man of her world would simply ignore the whole unpleasant affair and act as if nothing untoward had occurred.

But Wesley was not of her world. By his own admission he had climbed to the position he now occupied, working his way up from grade to grade. He was of the masses. As such, he probably knew nothing of conventional and polite usages and would be quite likely to embarrass her.

And yet—his courteous words spoken before her maid. No speech could have seemed more natural or more perfectly calculated to convey one impression to her, another to the listening Flora.

But had he spoken thus by accident or design? Could he be depended on to maintain a proper attitude when others were present or would he make vulgar scenes before the servants? What *would* he do?

At any rate, he had promised to keep away from her as much as possible during the voyage. It was time enough to cross that bridge when she came to it.

Suddenly she sat upright, an uneasy frown on her face. There was another bridge the necessity for crossing which she had forgotten. The unexpected coming of the crisis she had expected to be able to divert indefinitely had forced her to adopt a course of action which might result very disastrously for her in the future, and which certainly had been the reverse of diplomatic.

Although she was the wife of a multi-millionaire, she had scarcely any money of her own, beyond a few hundred dollars, the greater part of which she owed. Suppose—and the thought filled her with apprehension—suppose that he refused to make her an allowance?

She knew that among the "plain people," to whom he owed his origin, a woman, more frequently than not, was obliged to go to her husband whenever she found herself in need of funds. It was quite within the possibilities that Wesley had expected her to do this.

He had talked of "sharing" his wealth with her. Suppose he adhered to the old-fashioned practise of doling out small sums and compelling her to ask him for money? She could never bring herself to that! It would be out of the question even were their relations perfectly amicable.

And yet—she was entirely dependent on him.

Had she acted too hastily? Before taking the final step she should have made some stipulation or, at least, sounded him as to his views on the subject. Now it was too late. She had hopelessly antagonized him. She could never discuss the matter with him.

Flora, her maid, entered the room, bringing a cup of tea which she placed on the little table beside the bed.

For the first time Theodora realized that she was both hungry and thirsty. She had eaten but little breakfast and the excitement had prevented her from feeling the need of food.

As she reached out her hand to take the cup she noticed a long, white envelope on the table. She remembered that it was the same envelope which Wesley had put into her hands when they were leaving the church. She had given it to Flora at the dock.

Curious to know what it contained, she picked it up and tore open the flap.

Within were two documents folded and stamped with red seals. Quickly she unfolded and glanced through them. An exclamation of surprise and incredulity broke from her lips.

One was the deed of the New York house, made out in her name. The other was a notice from her bank to the effect that two million dollars in cash and securities had been deposited to her account.

For a moment she could scarcely believe her eyes.

Two million dollars! Such a settlement was more than generous—it was princely! The house, too, worth a snug little fortune in itself, was hers!

A slow flush crept over her face as she mechanically replaced the papers in the envelope.

In spite of the satisfaction she experienced in knowing that she was now entirely independent, it was galling to be forced to acknowledge that she had made such a mistaken estimate of Wesley.

It was a rather delicate thing—what he had done. His manner of doing it had shown tact.

She knew, too, that he had appeared to far better advantage than she in their recent altercation—if such it

could be called when she had been the only one to quarrel.

She had lost her temper and had acted and spoken in an undignified manner while he had kept his self-control and refused to be drawn into an ugly controversy.

And now his exceptional generosity had the effect of putting her into a hopelessly uncomfortable position. It was intolerable that a man of his antecedents and breeding should be able to make her feel such mortification. If she had been antagonistic to him before she now felt that she actually hated him.

She slept the greater part of the afternoon and pleaded a headache as an excuse for remaining away from dinner.

Wesley sent a polite message of regret by his secretary, but he did not come himself. After a solitary meal Theodora wrapped herself in a warm cloak and went up to the hurricane-deck.

It was a perfect night, clear, calm, and with little wind. The great steamer was sweeping on her way, leaving a sparkling wake of foam which was turned to pallid silver by the moon.

The deck was almost deserted. Now and then a couple strolled along, but most of the passengers were below.

Leaning over the rail, Theodora watched the play of the moonbeams over the dancing water. She was lonely and unhappy. Her own thoughts, which had been for so long her only companions, were not pleasant ones.

She longed for some one to talk to her—to take her out of herself. Undoubtedly there were acquaintances on board; but she would have preferred to talk to a stranger, some one who did not know the story of her trouble.

"Teddy!" said a voice at her elbow. "Teddy—is it you?"

With a start she turned. There was but one person in the world who called her by that childish nickname—her cousin, Arthur Bromleigh.

CHAPTER VII.

Bromleigh Defends Himself.

WITH an effort she repressed a desire to cry out.

"Why, Arthur," she said, "what brings you here?"

"That ought to be easy for you to answer," he said rather harshly. "You! I wanted to see you for myself—to talk to you and get this thing straight in my mind. Teddy, what does all this mean?"

"All what?" she queried in assumed surprise. "Is anything wrong?"

"You know what I mean. How long has this thing been going on?"

"How long has what thing been going on? I don't understand, Arthur."

"Yes, you do!" he interrupted, coming closer to her.

In the uncertain light his face looked white and haggard.

"I went to the house to-day and Pitt told me that you—you were to be married. I couldn't believe it. I had to see for myself. I went to the church and looked in the register. I found out where you had gone, too.

"I managed to make this steamer just as she was ready to start. I've been waiting for a chance to see you, but you kept out of sight. I was afraid to send a note down to you!

"Now tell me, what does it mean? Yesterday you were engaged to me. To-day I find you married to another man! I can't understand it, Teddy. It doesn't seem possible that you could do such a thing."

"Do what? Marry? Why should I not? You speak as if I had committed some sort of crime!"

"Well, haven't you?" he demanded roughly. "Isn't it pretty nearly a crime to keep a man dangling for years the way you kept me, and then

throw him over without a word for some richer fellow?"

She laughed.

"Really, Arthur, you are quite a tragedian! I never suspected that you had so much histrionic ability! And all this display of talent for me! I ought to feel honored, don't you think?"

He stifled a curse.

"Don't play with me, Teddy! I'm not in the mood for fooling! I want an explanation! You promised to marry me! You were engaged to me!"

"And you very kindly absolved me from my promise yesterday afternoon," she broke in quickly. "I think that not only releases me from any obligation to you, but also nullifies any right that you may ever have had to ask me for an explanation of my actions."

"I released you?" he cried. "You're mad! I did nothing of the sort!"

"No?" she queried. "If I remember correctly, you said your means were quite inadequate—that it was impossible for you to marry me on nothing a year, and, that being the case, I considered myself free to marry whom I chose. I offered you your freedom; you accepted it. That is all."

"No, it isn't all; not by a great deal!" he declared angrily. "I tell you, I did nothing of the sort! You twisted my meaning to suit yourself! I did say I couldn't marry you on the income I had, but I also told you I'd think things over and see what could be done.

"I meant to try to raise some money—even get a job, if there wasn't any other way. And you let me think you were going to wait for me, while all the time you intended to marry this Wesley fellow. It wasn't fair. It wasn't a decent thing to do, any way you look at it.

"I wouldn't have thought it of you, Teddy. You've always loved me—and now you've deliberately gone and married another man for his money!"

"How do you know I married him for his money?" she asked coolly. "People occasionally marry for other motives, you know, Arthur—even people in our set."

"There couldn't have been any other reason! You couldn't love him, because you love me—and, anyway, the thing's unthinkable! Why, the man isn't even in your class! He—"

"Arthur, you forget you are speaking of my husband," she warned him coolly. "All this can do no good. You fancy yourself aggrieved—but think it over! Whatever your intentions may have been when you left me yesterday, you carefully kept them to yourself. The whole interview admitted of no misunderstanding either on your part or mine. You were quite satisfied to terminate the engagement; so was I. I am sorry—"

"Yes—you're sorry!" He spoke in a tone of suppressed fury. "Sorry for what?—that I've found out you've been playing a double game with me? You must have known I would, sooner or later. But I suppose you figured you'd be well out of the way before I got the news!

"All the time you were pretending to care for me. You were leading Wesley along, keeping us both in the dark, while you were making up your mind whether you'd marry millions and a boor—or the man you loved. For you did love me, Teddy—you did love me!"

A pleading note crept into his voice. He caught her hand in both his own.

"I suppose I'm a fool to trouble my head about you after what you've done, or let you see that you've hurt me; but we've been so much to each other for years. There never has been any one else for either of us. You belong to me—you always have! And I want you! Teddy—"

"Hush!" she said tremulously. "Hush, Arthur. You mustn't talk this way to me. You know it isn't

right. It was wrong, too, for you to come on board the steamer. What will people say?"

"What do you suppose I care?" he flung back. "One thing more or less won't make any difference. I can't lose you like this—and I won't! I love you, I tell you, Teddy—I love you!"

"Hush!" she said again. "You must not forget that you are speaking to another man's wife! I can't listen to you when you say such things."

"You shall listen! You've treated me outrageously, but I can't help caring for you. Oh, Teddy, Teddy, why did you do it?"

The wind caught a fold of her cloak and wrapped it around him. He seized her arm and tried to draw her into his embrace, but she moved quickly aside and leaned back against the rail.

"Arthur, if you persist in going on this way I shall never speak to you again," she said firmly. "You have no right to talk of love to me, nor I to listen to you. The time for all that has passed. I am going below."

"Teddy!" he cried, as she pushed by him and started down the deck. "Wait! Don't leave me like this! I promise you not to speak of—of love if you don't want me to. I know I've no right—now, but I'm all upset tonight. I can't realize yet that I've lost you." He passed his hand over his forehead with a dazed gesture.

She paused, turned and came back toward him, deeply moved by his evident distress.

"Tell me," he pleaded, "you're not going to banish me altogether? You're going to be friendly, and let me see you sometimes? I won't annoy you, Teddy, I promise you on my honor. Only let me see you once in a while."

"Of course, Arthur! How silly you are!" She tried to laugh. "One would think the world was between us! We shall always be the best of friends, I hope. But—there must never be a repetition of this scene. I simply won't have it.

"And, now, good night. It's getting late and the wind is cold. I came up only for a moment. I've stayed on deck longer than I realized."

"Good night." He took the hand she held out to him, pressed it in both his own and dropped it reluctantly.

"Where is Wesley all this time?" he asked.

"Waiting for me to return, I presume. What should a good husband be doing?" She planted the shaft dexterously and had the satisfaction of seeing him wince. "I'll introduce you as soon as I have a chance. I'm sure you'll like him."

With a wave of her hand she vanished down the companionway.

CHAPTER VIII.

Another Business Interview.

"MR. BASSETT is waiting to know whether you will breakfast in the saloon, Mrs. Wesley. And Mr. Wesley sent these."

Flora put a fragrant bouquet of lilies-of-the-valley on the table and stood waiting for the decision of her mistress.

"No, I think now—yes—I will, after all. Get my bath ready, Flora, and say that I will be ready in three-quarters of an hour."

Perhaps it would be better to have the ordeal over as quickly as possible, Theodora thought. Not that she dreaded meeting Wesley, but she wanted to know how he would conduct himself toward her in public, so as to be prepared for future emergencies. And she felt reasonably sure that but few people would be in the dining-saloon that morning.

During the night the wind had risen to half a gale, and the steamer was rolling heavily in the high seas. A perfect sailor herself, Theodora never experienced the slightest discomfort on shipboard; but she felt that she

could count on the absence of the majority of her fellow passengers.

Wesley was waiting for her in the sitting-room of their suite. He smiled as he rose to greet her.

"Good morning," he said pleasantly. "The sea has no terrors for you, it seems. I have been on deck for the past hour. Father Neptune is in one of his wonderful moods. Perhaps you might care to go up later?"

He held the door open for her to pass out and followed her to the dining-room, talking easy commonplaces.

He was not going to be difficult, then. Theodora felt considerably relieved, yet, paradoxically enough, somewhat annoyed that her judgment of the man had been at fault.

During breakfast she conversed with him in almost friendly fashion, finding him more interesting and agreeable than her other neighbor, a near-sighted, fussy old gentleman, whose only utterances were in condemnation of whatever the steward set before him.

They had risen from the table and turned to go out, when Wesley said in a low tone:

"May I take up a few moments of your time? I find that I know several people on board. I think it might be wiser for us to come to some understanding that will be mutually agreeable before we begin to encounter our friends."

"Perhaps it might be wiser, as you say," she returned. "Will you come to the sitting-room?"

"Thank you."

When they were once more in the privacy of the suite she seated herself in a comfortable corner of the couch while he selected a chair at a little distance.

"It is my intention to take the next boat back to New York," he began, looking at her with steady eyes. "You will, of course, do exactly as you think best about returning with me. I speak of this now because it is unlikely that I shall have another opportunity. Please decide what you wish to do and let me know before we land so that I can make arrangements for your comfort.

"So much for that. Now, as to the future. You made it quite plain yesterday that, while I am personally distasteful to you, you are willing to keep up an outward semblance of domestic harmony and appear as my wife. At least, so I understood you. Am I correct?"

She nodded.

"Perfectly."

"Very well. I am a busy man. You are—or will be—a busy woman; but, our spheres of activity being widely different, there is no reason why we should in the least interfere with each other.

"For a few months, I presume you will prefer to keep the New York house open. After that, there is Dalemere and Newport, and all the rest, if you choose. You will decide which house you wish to open in Dalemere, yours or mine. Kindly consider them both at your service.

"You have, I believe, never been in Pine Lodge. It is rather small, compared to The Oaks; but this year you might find it more satisfactory, even though it has been but a bachelor's establishment, and may need a great many changes to make it entirely comfortable.

"In any case, you will not be burdened much with my society, except as appearances demand my presence. If you think it advisable I will continue to live at the Calabash Club while we are in town."

"The Calabash? You are a member?" she asked in unfeigned surprise. It was not a simple matter to be admitted to that exclusive club.

"In good standing," he assured her with the flicker of an ironic smile. "I have lived there for the past four years."

"It would look rather strange, I think," she mused doubtfully. "Perhaps you had better arrange to stay at

the house. It is unnecessary to furnish food for gossip."

"As you like. And I want to reassure you on one point"—again the faint, ironical smile that was more of the eyes than of the lips—"you need have no fear that I will disgrace you. I am afraid that the possibility has been a source of some discomfort to you. I am not a shining social light, but I have a deep respect for servants. That is all, I think. I won't keep you any longer."

He rose. Theodora stared at him for a moment, then laughed a little uncertainly.

"You are very businesslike," she said. "It is rather amusing to hear you. But before you go, I want to express my thanks for—"

He held up his hand quickly.

"It is quite unnecessary. You will oblige me by doing nothing of the sort. And if I am businesslike, it is perhaps as well to be so—in a business interview. If you want me for anything, please let me know at once. When you are ready for luncheon just ask Flora to notify me."

For some time after he had gone Theodora sat without moving, trying to analyze her own feelings. There had been nothing in his words to which she could take exception. Everything, too, had worked out just as she had intended all along that it should.

She was free to follow her own inclinations, free to go about as she chose, free to meet her friends and lead her life after her own fashion, unhampered by interference. She had attained her object—and yet she was not satisfied.

Wesley's quiet air of self-possession, his perfect poise, his courteous consideration for her somehow acted as irritants. He had simply assumed control of the interview, dominating her in a manner which she could neither resent nor find fault with, however much she wished.

He was neither boorish nor ill-bred, clumsy nor dull, nor uncertain of himself in any way. He had carried off a difficult situation with considerable tact, and he had shown conclusively that he possessed in no uncertain degree the instincts of a gentleman, though she had denied but the day before that he could lay claim to them.

He was not at all the sort of man she had supposed him to be. The knowledge that she had misread and misunderstood his character annoyed her exceedingly.

The thought of Bromleigh, too, added to her growing disquiet. The conviction that he had been eager to end their engagement had become too firmly entrenched in her mind to be easily shaken, even by his unmistakable dismay at her marriage; but her talk with him had left a sting.

Suppose, after all, she had misjudged him, condemned him too hastily? If ever sincerity had shone in a man's face and breathed through the tones of his voice, it had been apparent in Arthur Bromleigh's.

Why had she not given him a chance to demonstrate his love for her, if love it actually was? Why had she plunged headlong into this reckless marriage? In thinking to punish him for his attitude toward her, in thinking to flout him, she had succeeded in punishing herself.

Married to a man whom she did not love, caring for a man from whom she had deliberately separated herself forever, what chance of happiness had she? Wesley, she believed, in spite of his protestations, had been swayed by her beauty—drawn by the lure of sex.

Not that she wanted him to love her. The very thought of intimate relation with him was repugnant; but wounded pride and vanity cried out, as it had cried out against Arthur Bromleigh, that her attraction for him did not depend on what she herself really was.

Had she been ugly or ill-formed he would never have given her a second

glance; he would have passed her by just as her cousin had passed her by when the glitter of gold no longer drew him to her.

And—as the days went on and the steamer swiftly neared her port—Theodora's bitterness grew.

True to his promise, Bromleigh did not again bring up the subject of his love for her; and, equally true to his promise, Wesley never intruded, except as convention demanded his presence.

Thus it was that she spent the greater part of each day and evening with her cousin, walking about or sitting in a sheltered corner of the deck in his company.

The companionship meant much to Theodora. She avoided meeting any of the passengers and kept to herself as much as possible, even abandoning her intention of taking her meals in the dining saloon and sending word to her husband that she preferred to dine alone in her suite.

She saw practically nothing of Wesley. He, she understood, was shut up with his secretary, Jack Bassett, a pleasant-faced young fellow, who came regularly every morning and evening to know if she required anything or if there was some way in which Mr. Wesley might be of service.

On one occasion Theodora had questioned Bassett as to the reason for the sheaf of papers which he invariably carried and the long hours he spent at the typewriter.

"Well, you see, Mrs. Wesley," he had said, "that Atlantic and Pacific is a pretty big proposition, and Mr. Wesley left so unexpectedly that there were a good many loose ends. We worked until six o'clock the morning we sailed, but even then a lot of things were left undone.

"And," he had added with his frank, boyish smile, "you'd be surprised to know how many things are referred to the president. He isn't as foot-loose as he might be. We're in touch with the office by wireless all the time, and questions are eternally cropping up. Besides, there are all Mr. Wesley's other interests. I don't know how he manages to keep them all in order. He's a wonderful man."

It was news to Theodora. "Wonderful" was the last word she would thought of applying to Lynn Wesley. Yet, after all, was there not something rather extraordinary about a man who could rise from poverty and obscurity to the presidency of one of the largest railroads in the United States?

Plain, simple, unassuming, of humble birth, he had asked favors of no man—and he had received none. Whatever he had accomplished had been by his own unaided effort. Then was "wonderful" such a preposterous adjective to describe him?

But Theodora did not want to think of him. So far as was possible she meant to exclude him from her life.

She tried to banish from her mind all thoughts of her unhappy misunderstanding with Arthur Bromleigh, and flung herself, heart and soul, into the enjoyment of his society.

After all, she argued, nothing was changed. To all intents and purposes she was still Theodora Hartwell, although she legally bore another name.

No matter what Bromleigh had done or left undone, she loved him. It was good to be with him. There was so much she wanted to say, so much she wanted to hear that the days seemed all too short.

And if he did not put his love for her into actual words she read it in his eyes, heard it thrill in every tone of his voice.

It was dangerous—but it was perilously sweet.

CHAPTER IX.

Rumors of Trouble Arise.

ONE morning he joined her as she sat in her deck-chair, making a pretense of reading. The air was cold

and bracing, but the sun shone warmly and she was well wrapped in furs.

Bromleigh slipped into the vacant chair beside her and drew the rugs over his knees.

"Only two days more," he said regretfully. "And then — what then, Teddy?"

She shrugged her shoulders.

"Then the next boat back to New York. Lynn has to return immediately for business reasons, and there is nothing to keep me here."

"No, I suppose not." Bromleigh sighed and half turned away. "If things were only different—if you had not been quite so precipitate, think how glorious this trip might have been. Just you and I, Teddy, with nothing to call us back, nothing to interfere with us, nothing to prevent our wandering at our own sweet will.

"Think of Paris, Rome, Venice, Naples—how we could enjoy them together! Even with things as they are, it has been glorious to be with you. But, Teddy"—his voice sank to a caressing whisper—"alone with you, it would be heaven!"

She did not answer. Her breath fluttered through her parted lips.

When his fingers touched hers and closed over them she did not draw her hand away.

His low, musical voice, with an undertone of melancholy, seemed to enthrall her. She sat silently staring out over the blue water with dreamy eyes.

"Oh, here you are! I have been looking for you, Theodora!"

She started and turned her head. Her husband was a few feet away and coming toward them. Had he seen—heard? Evidently not, for he greeted Bromleigh pleasantly.

"You expressed a wish to go down into the engine-room," he went on. "Would you care to go now? I have an hour or two at my disposal, and the chief engineer—"

"Not to-day, thank you," she declined briefly. "I have a headache, and the noise and smell of oil would make it worse. I—why, there's Mrs. Van der Graffe, Arthur! I didn't know she was on board!"

A tall woman with a clear-cut face and gray hair was coming quickly toward them.

"How do you do, Theodora? And Mr. Bromleigh"—she addressed the man a shade less cordially—"I am quite surprised to see you. I did not notice your names on the passenger-list. What is this—a family party or a honeymoon? Some one told me—Lynn Wesley, this is never *you?*"

Mrs. Van der Graffe turned abruptly away from Theodora and extended both her hands to Wesley, who laughed as he grasped them.

"None other. Why do you look so concerned? Am I so unpleasant a sight, or do you take me for a ghost?"

"Neither, my dear boy. But I surely never expected to find such a busy man a couple of thousand miles away from the city and Dalemere. How did you ever come to tear yourself away?"

"I am returning on the next boat," said Wesley quietly.

"Really. Merely a flying trip, then. But the mystery to me is how you ever brought yourself to leave America. However—" With a gesture she dismissed the subject.

"I see you know Miss Hartwell and Mr. Bromleigh," she went on. "Theodora, you haven't answered my question yet—is this a family party or a honeymoon?"

Theodora flushed with annoyance. Bromleigh bit his lips. Mrs. Van der Graffe stood looking amusedly from one to the other.

It was Wesley who came to the rescue.

"A little of both, Mrs. Van der Graffe," he explained calmly. "Miss Hartwell has lately become Mrs. Wesley. And as Mr. Bromleigh is her cousin—you see?" He smiled.

"What? Dear me!" ejaculated the lady. "You really mean it? Why was I not told, Lynn? You—married,

and I—not invited—not even informed that you contemplated anything of the sort? I'm distinctly affronted."

"The wedding was private," said the unaffected husband.

"Well, well!" Mrs. Van der Graffe seemed completely taken aback. She raised her jeweled lorgnette and scrutinized Theodora closely.

"My dear, I congratulate you," she said after a moment, during which Bromleigh fidgeted uneasily and Theodora felt the hot blood burning in her cheeks. You are a very lucky young lady. I really can't understand just how you did it!

"Perhaps we shall see something of you now," she continued, turning to Wesley. "But if Theodora can make you come out of your shell, she will accomplish something to be proud of—more than any one else ever succeeded in doing.

"For years, Theodora, Mr. Van der Graffe and I have been trying to persuade, cajole, or frighten Lynn into abandoning that wretched, hermit-like existence of his—and had our trouble for our pains.

"He preferred those hideous boiler-works and railroad shops of his to decent places, and the society of mechanics and practical railroad men to ours. Bad taste, *I* call it. I hope you are going to change all that. Do you mean to go to Paris from Liverpool?"

"We are returning home immediately," Theodora said. "Back to the railroad and boiler shops," with a glance at her husband.

"Well, I shall see you both at Dalemere, of course, if not before. I shall be anxious to know if Theodora succeeds, Lynn, where we have failed so signally. *Au revoir!* I must get used to the idea of your being married—and to Theodora Hartwell, of all people! There's Van—come and talk to him. He will be delighted to see you."

Mrs. Van der Graffe nodded brightly and swept away at Wesley's side. Bromleigh resumed his seat and lighted another cigarette.

"She calls him by his first name; they must be old friends," Theodora quietly remarked to her cousin.

"Probably he used to work for the old man or something of the sort. Had a job on Van der Graffe's railroad—oiler, maybe," sneered Bromleigh.

Theodora did not answer him. It seemed to her as if the whole world had suddenly turned topsyturvy. Mrs. Van der Graffe—*the* Mrs. Van der Graffe—one of the most prominent and influential women in society, whose mere nod could make or mar a social career, was on terms of undoubted intimacy with Lynn Wesley; and her husband—a terror of Wall Street, a Colossus of the financial world—was slapping him on the back and greeting him as if they were the best of friends and cronies.

It was past belief. Theodora could not understand. Any member of her set would have been elevated to the seventh heaven by such flattering notice from the Van der Graffes; and here was Wesley, calmly taking it all as a matter of course!

The thought came to her that, perhaps, she had not been nearly but entirely wrong when she judged him. A man sponsored by such people as Elmer Van der Graffe and his wife would be welcome anywhere. Was it possible that Wesley had, as Mrs. Van der Graffe implied, kept out of society from choice, not necessity?

Theodora was vexed with herself that she had not stopped to consider that phase of the question.

Her husband was turning to look at her now, and Mrs. Van der Graffe was also looking. She flung aside her rug and rose to her feet.

"Coming, Arthur?" she asked.

"No. And don't you go, either. Stay here."

"Oh, I'll come right back!" She walked slowly toward the group.

"It is extremely unfortunate," she heard Wesley say as she drew near,

"but I had a wireless from O'Hara Sunday morning; and, unless the situation was really serious, he would not have communicated with me."

"The men are going out, then?" inquired Van der Graffe. "I was afraid of it. The rascal had great personal influence with them. Do you anticipate any trouble?"

"We always anticipate trouble when anything of the sort crops us. But if they're looking for a fight, they'll get it!" Wesley's face hardened and a steely glitter came into his gray eyes.

"We were speaking of the strike," he added, perceiving that Theodora had joined them.

Theodora extended a slim hand to Van der Graffe.

"Really, Lynn, I know so little about the practical side of railroading that I am afraid I hardly understood your explanation," she said.

Again she was conscious of resentment against her husband. Of course, he had told her nothing of the trouble at the shops, and his tactful way of enlightening her, so that it should appear to the Van der Graffes that she was fully cognizant of the whole affair, put her under fresh obligations to him. It would never do to let them suspect that everything in the Wesley household was not as it should be.

One fact she could not now help admitting, although, for the sake of her vanity, she tried to avoid it. Save for the scene in her sitting-room at the beginning of the voyage, Wesley's conduct toward her had been unimpeachable. And when she remembered her words to him she was ashamed of their untempered violence.

He had behaved like a gentleman from first to last. Had she behaved quite like a gentlewoman?

The admission cost her a severe struggle with her pride; but, in the end, she conquered. She had been soothing her conscience with sophistries; but there should be no more of them.

It was not necessary that she apologize for or retract anything she had said; but she resolved that henceforth she would treat her husband in a more friendly manner and let him understand that he was not the only one who could be magnanimous.

CHAPTER X.

Mrs. Hartwell-Harpell Takes a Hand.

"I MERELY offer this as a suggestion, you understand, Theodora, and without any personal criticism. Your intimacy with Bromleigh excited some comment in New York. Since we have been in Dalemere the gossip seems to have received fresh impetus."

Theodora set down her coffee-cup and looked up at Wesley as he stood leaning over the stone balustrade at the edge of the terrace.

"One would think that a man might be better employed than in listening to the wagging of malicious tongues," she remarked, "especially if they happen to be discussing his wife."

Wesley flushed.

"Pardon me," he said stiffly. "I fear I have given you a wrong impression. No one has said aught to me, at any place or time; but, perhaps, you will agree with me that direct statements are immaterial where scandal is concerned. A look, a meaning smile, a shrug of the shoulders are quite as effective. "And I think I ought to tell you that I have received several anonymous letters, warning me that your conduct was not all that it should be."

"That is interesting," she replied calmly. "But in my humble opinion the man who pays any attention to communications of that sort is almost as much to be admired as the person who writes them."

Wesley's flush deepened.

"The fact that the first one reached me over two months ago should convince you that I gave it scant consideration. All this is beside the ques-

tion, however. The point is that you are being talked about—not that I know it or by what means I found it out. For your own sake, I ask you to be more careful.

"I am aware that Mr. Bromleigh is your cousin, and that you have been much together all your lives. It is no more than natural that you should be fond of him and enjoy being with him. Entirely apart from that, you are privileged to choose your own companions and friends. But, at the same time, I think it unwise for you to be seen with one man to the exclusion of all others, and—"

"Of course, it has not occurred to you that I must do something besides embroider and read?" she interrupted. "You are so deeply interested in your railroads and boiler-shops that you give me very little of your society, and one must have some sort of intercourse with one's fellow beings, you know, if one is not to become entirely mummified."

There was an ironical smile upon her lips. Wesley looked at her steadily for an instant.

"If I have been remiss in the past," he said dryly, "I shall do all I can to make amends in the future. You will forgive me if I received and retained the impression that you preferred solitude to my company under any and all circumstances.

"By the way, your aunt, Mrs. Hartwell-Harpell, stopped in the office to see me to-day. I have known her for a long time, but I have not seen her since the early spring.

"Unfortunately, I had a directors' meeting, and was too busy to say much to her; but she asked me to say that she intended to stop in to see you this evening. She has been ill or she would have come before. I believe she is going back to the city to-night, to remain until next week, when she is going away somewhere on a visit."

Theodora made a grimace. The prospect of seeing her aunt was not an alluring one.

Wesley picked up his cigarette-case from the table, bowed, and turned away.

"You are not going to be at home, then, to see her?" inquired Theodora, as he started for the steps.

"I am sorry—no. I should not have left the shops at all, but I wanted to remove some valuable papers from the office safe and thought the best place for them was here.

"The men are very unruly. Devlin and one or two other agitators are stirring up as much trouble as they can—which is considerable. Constant watchfulness is needed. It was late when I got back from the city and I at once reenforced the guard around the building. And then—but surely," he broke off, "you cannot be at all interested in this. Forgive me for inflicting it upon you."

He raised his hat and strode down the steps. Theodora watched him spring into the waiting automobile and take the wheel from the chauffeur. Acting on a sudden impulse, she leaned over the railing.

"Lynn!" she called.

He looked up.

"Yes?"

"There's no—no danger, is there?"

Some subtle inflection in her voice made him turn his head quickly, but she was not looking at him. His lips tightened as he reached for the lever beside him.

"None at all. Don't worry about me, please," he answered.

The machine glided forward and rolled swiftly out of sight. Theodora leaned back in her chair and sighed. A moment later she was wondering why she had sighed. Was it because people were beginning to make unpleasant comments about her or because she dreaded the impending call of Mrs. Hartwell-Harpell?

She could not tell; but there was a wistful look in her eyes as she sat gazing out across the broad expanse of smooth, green lawn that sloped down to the river-bank.

It was just six weeks since she had come to Dalemere, nearly three months since her marriage. Spring had been late in arriving, and now in June the evenings were just beginning to be warm and delightful.

On the other side of the river, some three miles distant as the crow flies, the dark gray buildings and tall chimneys of the railroad shops loomed black against the twilight sky. Clustering about the foot of the hill, now fast becoming an indistinguishable blur in the half darkness, were the cottages of the men employed at the shops of the Atlantic and Pacific and the boiler factory.

For nearly eight weeks now the clamor and roar of the machinery, the noise of the engines had been spasmodic or silent altogether.

The men had struck, as Wesley had expected. No sooner had he landed in New York, after the flying trip abroad, than he had plunged into the task of trying to adjust their grievances.

He spent nearly all of his time at the Dalemere offices, frequently eating and sleeping there. Between this and his duties in New York Theodora saw very little of him.

She had stayed on alone in New York for a short time; then, obeying one of her sudden impulses, she had closed the house and gone down to Pine Lodge. To those who inquired the reason for her early departure from town she advanced the excuse that she was tired out and needed absolute rest—the quiet and solitude that are not to be found in the city.

But to herself she gave no reason. She had felt impelled to go—and she had gone.

A week after the front of the big Hartwell house on the avenue was boarded up Arthur Bromleigh engaged rooms at the Dalemere Inn, just opening for the season.

There were, as yet, no other guests and not more than two or three of the summer residences were occupied; but there were enough people to observe and gossip about the ever-increasing frequency of Bromleigh's visits to Pine Lodge. It was inevitable that Wesley should hear fragmentary rumors, if nothing more.

Theodora had realized this, but she told herself that she did not care. Her husband was nothing to her, nor she to him. What little intercourse there was between them consisted of a polite exchange of civilities and commonplaces.

True, he was always thoughtful of her comfort, and her slightest wish was anticipated and instantly gratified; but he never showed a desire to be with her, being immersed in business and seemingly quite content that she should go her own way without hindrance.

Theodora would not have been a woman had not this attitude of courteous indifference piqued her. Unconsciously, she was beginning to resent it more and more. Illogically enough, while she was indifferent to him, she wished him to be interested in her.

And when it was quite apparent that his absorption in his work left no room for her in his thoughts, she began to try by various little arts and subterfuges to win his attention, partly for the sake of salving her vanity and proving that she still possessed power over him, partly because she was dull and discontented — and knew not the reason for her dulness and discontent.

Even the almost constant companionship of her cousin could not entirely conquer the unrest that had taken possession of her.

She had achieved the summit of her ambition. She had beautiful homes, numberless servants, unlimited wealth at her disposal; nothing to worry or annoy her—and yet she was far from being happy.

In her inmost heart she knew that this was because she had chosen the shadow for the substance; she had

chosen between pride and the gratification of personal spite and vanity on the one hand and love on the other. Now she was paying the penalty.

She had thought to revenge herself on Bromleigh, thought to show him how little she cared for him, and the blow she had dealt had recoiled upon herself.

No matter how often she might see him, no matter how happy they might be together, the barrier that she had placed between them would be there always.

A step on the terrace made her turn her head.

"Dora—are you there?" some one called. It was the same high-pitched, unpleasant voice that she remembered.

She rose and went toward her aunt, who had just emerged from the French window of the drawing-room. Silhouetted against the brightly lighted interior of the room, Mrs. Hartwell-Harpell looked taller and more angular than ever.

She extended a limp hand to her niece and pecked at Theodora's cheek with thin, cold lips.

"Well, Dora, I must say that you are a very strange young woman," was her salutation. "I thought your letter lacking in gratitude and appreciation. It was certainly very inconsiderate of you to contract a marriage in such haste and without even asking me to witness the ceremony.

"But then"—settling herself with much rustling of stiff black silk—"by this time I should know enough to expect little from you. I suppose you inherited your character and disposition from your father. Your training was everything that it ought not to have been from the very hour your poor mother died. Your father—"

"We won't discuss father if you please, Aunt Lydia," Theodora interrupted. She was conscious of the same feeling of antagonism that always manifested itself between her aunt and herself—a total lack of sympathy and understanding that was the more trying because of Mrs. Hartwell-Harpell's tendency to carp at and find fault with everything that did not meet with her approval.

"No, we won't discuss your father," agreed the old lady. "I came to talk about you. Every one else is doing it. I haven't more than half an hour to stay, so I'll come to the point at once. Dora, I think it my duty to interfere."

Theodora compressed her lips.

"I really do not see that any interference is called for," she said coldly. "Suppose we talk of something else. Lynn—my husband—told me that you had not been well. I trust you are feeling better?"

"I'm well enough," she said grimly. "And we won't suppose anything of the sort. I am your only living female relative. I saw your father go down to ruin and a suicide's grave through his own headstrong pride and love of display. I saw him fostering the same pride and vanity in you—in spite of everything I could do.

"Then it was a question of you and him alone. Later that young rascal, Arthur Bromleigh, became involved. I didn't care what happened to him, and I had almost ceased to care about you. You wouldn't take my advice; you wouldn't listen to me; you showed plainly that you thought me simply a meddlesome, cranky old woman who only wanted to poke her nose into other people's business.

"I washed my hands of you. You wanted to go on in the way you had started, and I couldn't stop you. So long as it was just a question of you and Bromleigh I had made up my mind to keep out of it.

"But when you deliberately try to ruin the life of a good man; when you go about breaking his heart simply to gratify your own inordinate vanity and selfishness, I *will* interfere! I'll say what I have to say, and no one shall stop me!"

The good woman brought her open palm down on the arm of her chair with a sharp slap as her jaws set firm.

"No, don't interrupt me," she went on rapidly as Theodora tried to speak. "I mean to make the most of my time. Dora Hartwell, do you know that you are a bad woman? Do you know that the sole aim of your life is to be admired by men and envied by women? Do you know that, I say? Do you ever think of it?

"If you have any decent, womanly instincts, you smother them. You've never been anything but a useless social butterfly, without a heart or a soul. You've got brains if you'll only use them — but you never have used them except to scheme how to outshine somebody else or to gratify some petty vanity.

"If you'd had to go to work—work with your hands—when you father died it would have been the best thing that ever happened to you. I offered you a home with me because I thought maybe I could find some good in you somewhere and bring it out.

"But you saw a chance to marry—to marry and get a lot of money—and you took it. Lynn Wesley came along, and he mistook you for the kind of woman he wanted for his wife. He thought he was marrying a good woman. But just what did he marry? You can answer that better than I can.

"Look at him! Is he happy? Is he contented? He gave you everything, and you've thanked him by carrying on a disgraceful love-affair with another man! You're the talk of Dalemere! Your name is in every one's mouth.

"Your husband works day and night at those shops there or in the New York offices, doing work that most men would leave to subordinates. But it isn't Lynn Wesley's way to leave things to subordinates. If there's anything that goes on in those railroad offices, in the shops—anywhere about them—he knows it, and he has every detail at his fingers' ends. There's a man for you!

"And while he's working his heart out you sit around here and let Arthur Bromleigh make love to you—to you, the wife of an honorable gentleman!

"Do you think such conduct is becoming—respectable even? Have you no sense of right and wrong? You married Lynn Wesley without loving him — although Heaven knows how any woman could help loving a man like that! That was bitterly unfair to him in the first place.

"And now you deliberately wrong him further. Where is this going to end? Are you going on — to die a ruined and disgraced outcast—looked down upon by every one—outside the pale of decent society? Or are you going to dismiss this wretched cad who is thinking only of himself, who is careless of your good name, and go to your husband and ask his forgiveness for what you have done?

"When I think of the way you have acted toward him I can understand how it is that some men are actually cruel to their wives."

Mrs. Hartwell-Harpell leaned forward, her hands gripping the arms of her chair, and stared at Theodora with hostile, accusing eyes. The younger woman met her gaze steadily.

"I think, Aunt Lydia, that this time you have gone too far," Theodora said icily. "All my life I have borne with you because your existence seemed to me so narrow, so empty, and I was sorry for you. I believe my father felt the same way. But you exceeded the limit of his patience at last, and now you have brought me to the end of mine. I am no longer a child. I refuse to sit here and allow you to insult me. I am going to my room. If you require anything ring the bell."

She turned and moved toward the open window.

"You might tell Mr. Wesley," she added over her shoulder, "that it is hardly good form to discuss his wife, even with well-meaning meddlers."

"Wait a moment!" Mrs. Hartwell-Harpell's voice was shrill with

anger. "Lynn didn't say anything to me about you. He wouldn't even let me say anything to him. At least do him that justice. He is a gentleman and far too good to be thrown away on such a wanton woman as you!

"You needn't go to your room. I'm going back to the city right away. I've tried to bring you to your senses, but it's no use. When a woman has no heart, no decency, no honor, how can one expect to gain anything by appealing to her?

"Good-by! I won't keep you any longer. Doubtless the conversation of the person who is just behind you will be more to your taste than anything I might have to say."

She walked quickly down the steps, calling to the driver of her carriage.

"What under the sun has happened, Teddy? Is the old woman crazy? What has she been saying to you?" Arthur Bromleigh emerged from the shadow of the French window and strolled along the terrace.

Theodora looked at him with wide, troubled eyes, which suddenly filled with scalding tears.

"Oh, Arthur, I'm so unhappy!" she faltered brokenly. "She—she said dreadful, unpardonable things to me! They all want me to give you up—they want to take everything away from me! It isn't fair—it isn't right! I've done nothing wrong! It isn't true—what she said! Even Lynn—" Her voice choked and she turned away.

Bromleigh's face lighted up. He drew her into a close embrace

"You made a terrible mistake when you married Wesley. Are you going to let the consequences of that mistake ruin your whole life when the remedy is close at hand? All he wanted was to gratify his social ambition; to use your position for his own benefit. He didn't love you—you know that. He doesn't love you now.

"What has he given you? Money—that's all, money! He neglects you openly and spends his time down at those railroad shops. That's the sort of taste he has. He doesn't care a rap for you; he almost insults you.

"And we love each other. Why should we consider him? He listens to every wagging tongue and then calls you to account. Come with me, Teddy—now—to-night! Let me take you away and make you happy. Come!"

"No, no!" she protested. "Arthur, you mustn't talk to me like this. It isn't right. I've told you—"

"Right! Isn't it right for two people like you and me to live their own lives? What's wrong about that? Why should you tie yourself down, deny your love, break your heart and mine when, by throwing off the shackles of petty conventionality, you can be free—free to be happy in your own way?

"Haven't you a right to happiness? Haven't you had enough sorrow? Haven't you paid for your mistake every minute since your marriage to this man?

"Who is he that he should stand between us? You loved me before you even knew that he existed. You put me aside for him—put me aside knowing that I loved you and you returned my love. Why should you not now put him aside for me? And for yourself. Teddy—"

"Hush!" She drew away from him. "You must not! I—listen! Some one is calling!"

"Mrs. Wesley! Mrs. Wesley!" Flora ran out on the terrace and looked wildly around.

"Here, Flora! What is it?" Theo-

CHAPTER XI.

Trouble at the Shops.

"TEDDY, don't you see—you've got to come with me now." Bromleigh spoke rapidly, his lips close to her ear. "All these months you've kept me from speaking to you of love; you've held me at arms' length. Why won't you consent to be reasonable and face the situation as it really is?

dora hurried toward the excited maid, who was pale and shaking.

"The men are going to blow up Mr. Wesley's office at the shops to-night! There's an infernal machine or something hidden under the steps! One of the men told— Oh, never mind how I found it out; but the machine is set to go off at eleven o'clock to-night, and—"

Theodora waited for no more. Like a flash, she sped into the house. Caleb, the old butler, was at the telephone in the hall.

"It's no use, ma'am!" he cried. "The mill wire is out of order—cut, most likely. I've called Peters and told him to bring the big car around. Some one will have to go to the mill and warn Mr. Wesley. It's the only way to reach him now!"

Theodora glanced at the clock and uttered a strange cry. She caught up a cloak from a chair in the hall as she ran toward the door. Bromleigh was just coming in.

"Teddy, you're not going—"

She thrust him aside without speaking. The big touring-car was just swinging around the corner of the house to the foot of the steps.

"To the shops—quick, Peters!" she gasped. "Don't stop for anything!"

As the car swept past in a wide curve Bromleigh made an attempt to spring into it, missed his footing, and sprawled over the road. When he recovered the car was far down the road, gathering speed with every revolution of the wheels.

Crouching in the tonneau, Theodora gazed out along the road, counting the milestones as they flew past and urging the chauffeur to put on greater speed. It was ten minutes to eleven. Would they be able to reach the mill in time?

She shuddered as she thought of what would happen if they arrived too late to apprise Wesley of his danger.

He had said there was no danger. He had been trying to spare her anxiety. He must have known that there was danger. That the men had been in an ugly temper she well knew; but that they would try to take the president's life —

"Can't you go any faster?" she urged. The words were snatched from her mouth by the wind. She repeated them, leaning forward and raising her voice almost to a shriek.

"Getting every ounce of speed I can!" the chauffeur shouted back. "We're doing over sixty now!"

The car swept down the incline of the river-bank and hurtled across the bridge. Only a minute or two now. Theodora began to breathe more easily.

Suddenly the darkness ahead was split in twain by a brilliant flash. A dull roar followed. Theodora felt a clutch at her throat. A sudden wave of nausea swept over her. She swayed on the seat and closed her eyes.

The speed of the motor slackened. With a sliding jerk, the wheels stopped. Somehow she found herself on the ground, surrounded by a throng of yelling, gesticulating men who jostled and elbowed each other in an effort to get nearer the office. The flaming arc-lights threw weird shadows over the scene.

With cold hands, Theodora grasped the arm of a man who was pushing his way past her.

"Is he—is he—*dead?*" The words were little more than a whisper.

"Dead as a door-nail, and serve him right, too, the skunk! He oughter —I say, don't do that! Hold on—I didn't see you was a lady. Boys—bear a hand here! It's Mrs. Wesley!"

The grimy buildings were swinging in a wide circle before Theodora's eyes. She tottered and reached out blindly for support toward the man, who caught her as she stumbled to her knees.

"What's that?" A tall man who was bending over something that lay before the door of the ruined office turned quickly. He heard the excla-

mations of surprise and astonishment, saw the swaying figure in the black satin evening gown, and sprang forward.

"Theodora!" he cried.

"Lynn," she moaned. "They—he—said you were dead. I—I came to tell you—" She could not go on.

"My dear girl, this is no place for you. You must go back at once." His voice was stern, almost harsh, but there was a wonderful light in his gray eyes. "I am all right — quite unharmed. It is Devlin who was hurt. The bomb he was planting for me exploded prematurely. But I can't stop to tell you about it now.

"Peters" — he raised his voice— "take Mrs. Wesley home as quickly as you can. I will follow as soon as I can get away from here."

By a supreme effort of will Theodora mastered herself. The terrified look faded from her eyes and a spot of angry color appeared in each white cheek.

She had come to try to save his life and he spoke to her as if she were a refractory child! It was intolerable—and before all these men! She gathered her cloak closely about her neck and, disdaining his proffered assistance, stepped into the automobile.

"I am sorry that I came," she said coldly. "I should not have done so, I know."

Wesley sprang forward.

"Theodora," he exclaimed in a tone meant for her ears alone, "you misunderstand! I can't tell you now of my appreciation for what you did and for the thought of me which prompted you. But with all this excitement you shouldn't be here. I will get back to the house as soon as I can."

She met his pleading eyes unmoved.

"Good night," she said briefly and motioned to the waiting Peters.

Sitting rigidly upright in her seat, Theodora strove to analyze her own emotions. From the time she had grasped the meaning of the maid's incoherent story until the sound of the explosion had reached her ears, she had been conscious of but one thought—to reach Lynn Wesley in time to warn him of his danger and assist him to escape. Then—then she could not remember what she had thought.

The muffled noise of the bomb had apparently deprived her of all sensation. She had had a vague impression of horror. An unreasoning sense of dismay and bitter loss had gripped her when the man in the yard of the shops, misunderstanding her question, had told her that her husband was dead; but why this had been so she did not know, nor did she stop to think.

Outwardly calm and collected, she was angry at herself and furious with Wesley. The way he had received her, his criticism of her act in going to him, his brusk manner, made her burn with indignation.

She had made a desperate effort to save his life; she would have been glad to risk her own in order to do it; and he had merely told her to go home at once!

He had humiliated her in public. He had been nothing less than insulting to her!

If only she had not gone to him; if, instead, she had sent Peters. The chauffeur could have delivered the warning quite as well as she, and she would have been spared this mortification. She could not understand what had possessed her to rush off as she had done, bareheaded and with only a light wrap over her evening gown.

And she remembered pushing her cousin aside when he tried to detain her. He had wanted to go with her, had attempted to jump into the moving car and had fallen to the road. Perhaps he had injured himself—through her fault. It was always her fault.

Somehow, she was continually hurting Arthur, the man who cared so deeply for her, and hurting him for the sake of Lynn Wesley. What a mockery—to injure the man she had always

loved in order to try to serve another man for whom she cared nothing at all!

"Poor Arthur," she murmured.

She thought of the words he had been whispering to her when Flora had burst onto the terrace. They had gone completely out of her mind, but now every syllable came back to her clearly.

He wanted her to go away with him and let him make her happy. If she only could! How wonderful it would be to be always with him, with no one to stand between, no gossiping tongues to utter harsh and unjust condemnation!

That was all her fault, too. Her hasty, ill-judged action in marrying Lynn Wesley had wrought havoc with her life and happiness; and with her cousin's as well.

She leaned back against the leather cushions and closed her eyes wearily as the car purred up the long drive and came to a standstill at the foot of the steps, and the excited servants swarmed out.

She quietly dismissed them. Mr. Wesley was quite safe and uninjured. They went back to their own quarters, still curious, but with their anxiety relieved. The old butler, Caleb, was observed wiping tears from his eyes. He was devoted to his master.

Bromleigh was waiting on the terrace. He started up from his chair as Theodora came toward him, an unspoken question on his lips.

"I found him quite all right," she said. "Some one was hurt by the explosion—Devlin, I think; but I did not stay to learn definitely what had happened. I wanted to get back home as quickly as possible."

"Yes—you wanted to come back to me." There was a triumphant ring in Bromleigh's caressing tones. "Teddy, dearest, you wanted to come back to me."

He put his arm about her shoulders and turned her face up to his, looking down into her eyes with an exultant smile.

"My own Teddy. What? Tears? No, no! There must be no more tears. We aren't going to allow that. My little girl must forget that such things as tears exist in the world. They shall not exist for her."

With an effort Theodora stopped the quivering of her lips and slipped from Bromleigh's arms. She would have liked to drop her head on his shoulder and sob her heart out; but she drew away from him firmly

"You must go, Arthur. It is very late and you ought not to be here. People will talk."

"Let them," he said carelessly. "What does it matter to us if they do? Teddy, don't draw away from me, dear. Turn your face toward me—so. Now—"

"No, no!" She held him away with both hands. "No, Arthur. Please—I—I'm not myself. I'm tired and upset. Please go, Arthur."

He looked at her curiously for a moment. Perhaps something in her face told him that it would be wiser to do as she asked. She was on the verge of a nervous collapse, that was certain. To press her now might do more harm than good. He stroked her hand.

"All right, dear," he conceded. "Just as you say. But to-morrow—I'll come to-morrow. Then, Teddy, you trust me, don't you? You believe that my one thought is for your happiness?"

She gave him both her hands, smiling up tremulously through her tears.

"Arthur, I do trust you. And now—good night."

He left her standing by the railing, looking out across the river to where the arc lights of the shops cast a dull orange glow against the clouds.

CHAPTER XII.

An Unpaid Debt.

SHE had lost all count of time. It might have been an hour that she had been sitting there alone by the

open window; it might have been two or three.

The house was very still. All the servants had gone to bed except Caleb, the butler, who always sat up for his master no matter how late it might be.

With her elbows resting on the window sill, her chin in the palms of her hands, Theodora sat staring out into the night. She was not sleepy, nor was she conscious of fatigue, although she had told Bromleigh that she was too tired to talk to him. Never had she felt less inclined to go to bed; yet a sort of dull listlessness seemed to have descended upon her, rendering her mind incapable of coherent action.

She knew that she was face to face with the greatest crisis of her life. Before another night she must decide the momentous question of her whole future.

Yet, somehow, she could not seem to reason things out clearly. Smaller considerations dwarfed the greater.

To go away with the man she loved meant comparative poverty and complete social ostracism, for a time, at least. Bromleigh knew this, and was willing to face it; and, had that been all, she believed that she would gladly have faced it with him.

But there was that in her nature which forbade such a course. She had never been able to regard leniently, or, indeed, to find any excuse whatsoever, for those women who, being dissatisfied with their choice of a husband, eloped and waited for the law to free them from their marital bonds.

While believing in divorce as a solution for unhappy or ill-assorted marriages, she stood firm in her conviction that the law should be invoked first. With freedom might come the formation of new and more agreeable ties; but until the courts had dissolved her marriage, Theodora felt that she could not even consider Bromleigh's proposal.

But it was also out of the question that she should go on living in Wesley's house. The arrangement which had once seemed so easy had now become intolerable. Had he turned out to be the sort of man she had believed him to be she might have been able to reconcile herself to the course she had mapped out for herself; but the growing respect, esteem and admiration she felt for her husband's character had shown in no pleasant light her own course.

She was, although she resolutely refused to acknowledge it to herself, bitterly ashamed of the part she had played; and the knowledge that Wesley must despise her but added to her mortification.

For he did despise her. She knew it now. And why should he not? What other feeling could such a man have for a woman like her? Her aunt had been right—only too right. The contemptuous words had stung only because of their inherent truth.

"He works day and night, at those shops there or in the New York offices, doing work that most men leave to subordinates. But it isn't Lynn Wesley's way to leave things to subordinates. If there's anything that goes on at those railroad offices, in the shops, anywhere about them, he knows it—and he has every detail at his fingers' ends. There's a man for you! And while he's working his heart out, you sit around here and let Arthur Bromleigh make love to you—to you, the wife of an honorable gentleman. Heaven knows how any woman could help loving a man like that!"

And what was it that Mrs. Van der Graffe had said to her? "I wonder if you realize what a very lucky young woman you are!" Lucky? She? Was it lucky to be dependent on a man she had so deeply wronged and who justly despised her? Lucky! She was wholly, utterly miserable!

There was only one thing to do. She must go away somewhere and allow him to divorce her on the grounds

of desertion. It would take time; but she had married in haste and it was inevitable that she should repent at leisure.

To Arthur Bromleigh she gave scarcely a thought. Some day, perhaps, when she was free, they might come together again. But not now—not now! Her heart was too sore, her pride too broken. Now she wanted no man's love—only rest and peace for herself.

There was a light tap on the door of her room. She turned from the window in some surprise.

"Come in," she called.

The door opened and her husband entered. He was clad in an old pair of riding trousers and high boots. A blue shirt was open at the neck. He carried his coat over his arm. A distinct odor of burnt wood came from his clothes.

"I just wanted to speak to you a moment, Theodora," he said. "I know it's late and I look like a tramp; but fire broke out in what was left of the office and we had a lively time before we got it under. I got drenched and had to put on these old clothes. I saw your light under the door and ventured to beg admittance."

He slipped into his coat and drew a chair toward him.

"I'm afraid you thought I was uncivil—and ungrateful," he went on. "But—well, the fact is, Devlin wasn't the only one hurt when the bomb exploded. Two other men were with him, the ringleaders of the gang who have been causing all the trouble. All three were killed.

"It was no fit sight for a woman and my one thought was to get you away. Another two feet nearer the office and you couldn't have helped seeing—and it wasn't a pretty thing to see."

So he had come to salve her wounded feelings! More coals of fire on her head! Well, he should not know that she had been hurt by him!

"I quite understand," she said coldly. "You need not have troubled to explain. I should not have gone in the first place, but the news was so unexpected. I thought there was no danger to be apprehended. I lost my head for a moment and acted on impulse."

"It was a mighty fine impulse," he rejoined warmly. "And I want you to know that I appreciate it. If I seemed rude, it was solely because I wanted to spare you what must have been a painful and hideous sight."

He bent forward, looking at her with grave, steady eyes.

"Theodora, was it only an impulse to save a life? Were you in fear and anxiety because some one—any one—was in danger—or because I was in danger?"

She picked up a silver paper-cutter from the tabouret at her elbow and toyed with it indolently. Her eyes were downcast.

"I'm afraid I don't quite understand you," she said. "Certainly I was anxious about you. Only this evening you assured me that there was absolutely no danger, and when Flora told me, I was taken entirely by surprise. That is my only reason for acting as I did—that, and the fact that I had just been through a very unpleasant scene with my aunt. She"—with an almost insolent smile—"took it upon herself to criticise my conduct. Doubtless you discussed the matter with her this afternoon."

"What matter?"

She raised her eyebrows.

"Why quibble? I fancy you know to what matter I refer."

"If you mean your being seen so much with Mr. Bromleigh, I certainly did nothing of the sort."

"Really? It seemed to me that Aunt Lydia would hardly have had the courage to speak to us both as she did had she not felt sure of your moral support. However—"

"'Us both'?" he interrupted quickly. "Whom do you mean by that?"

"My cousin and myself, naturally."

"He was here again — to-night?"

"He was," she answered briefly.

Wesley's heavy brows contracted in a frown.

"You will pardon me for reminding you," he said, "but I think I suggested no later than this evening that you should see less of Bromleigh. Under the circumstances, was there any reason why you should receive him immediately thereafter?"

"There was—an excellent reason."

"And that—"

"Because" — deliberately — "I did not choose to follow out your suggestion."

A dull flush stained Wesley's face. His hands closed tightly over the arms of his chair.

"You mean that you intend to disregard my wishes entirely—that you persist in your friendship with him—and will still allow him to continue his too frequent calls?"

"I mean that I shall certainly do exactly as I see fit!"

She dropped the paper-cutter with a clatter on the table and faced him defiantly.

"I think you, like Aunt Lydia, take too much for granted when you attempt to lay down rules for my personal conduct," she continued before he could speak. "I do not propose to submit to any dictation from you, Mr. Wesley, nor to tolerate your criticisms. The sooner you realize that I am a free agent, the more harmonious the relations between us will be."

It was her sore heart, her hurt pride, speaking. He never praised, always blamed. He condemned her contemptuously, coldly. Tears were very near her eyes, but Wesley did not know that.

"I have never interfered with you," he said slowly. "I have allowed you to go your own way and do exactly—to use your own phrase—as you saw fit. But I have come to the conclusion that I have been making a serious mistake. You are a free agent; yes. I should never presume to curtail your personal liberty; but when liberty degenerates into license, when my name through the actions of the woman who bears it is on the lips of every club loafer, it is time for me to call a halt." He rose and stood before her, his jaw set, his eyes flashing.

"To-morrow," he said, "you will send word to Arthur Bromleigh that you regret your inability to see him for some days. He is not to come here again within the week, nor are you to meet him elsewhere during that time. Please understand that clearly."

But the note of command in his voice was to Theodora as the stroke of a heavy whip to a mettlesome horse.

"Indeed!" she drawled. Her head was tilted back and she was looking at him through half-closed eyelids. Two spots of angry color burned in her cheek; but her voice was even and calm, and she had quite forgotten how near she had been to weeping but a moment before. "Do you think you are speaking to a servant, Mr. Wesley? You are quite mistaken. By what authority do you issue orders to me, may I ask?"

"By this," he went on curtly. "You married me of your own free will. You live in my house and you bear my name. And while you do, you will observe at least a semblance of propriety in your conduct. Since you refuse to take any notice of a civil request, I must take matters into my own hands and *command* that you do as I say. This is my house, you are my wife. I have tried to adjust this matter amicably; but you decline to concede that I have any authority. Now I have finished with pacific methods. That's all."

Lazily she slipped from her chair and stood facing him, her head a little to one side, a provoking smile on her scarlet lips.

"Not quite all, I think," she returned. "You have overlooked one thing—our original bargain. I do not

like to refer to sordid commercialism, but you leave me no choice. I agreed to become your wife in return for certain financial considerations.

"You agreed not to interfere with me in any way. I was to live as I pleased, where I pleased, and you were not to object. Well, I am doing as I choose, and I propose to continue.

"I regret that my course does not meet with your approval, but it can hardly matter, really. And now that I have stated my position clearly, will you kindly leave my room?"

She had not raised her voice; but her attitude stung him to madness.

"One moment!" He was breathing hard, and the blue veins on his temples pulsed heavily. "One moment! If I have overlooked one of the provisions of our original contract I think you have done the same. In return for a home, jewels, clothes, motors, servants, and various other incidentals you agreed to become my wife.

"I faithfully adhered to my part of the bargain. I have given you everything I contracted to give you. But you"—his voice suddenly hardened, and the look in his eyes was not pleasant to see—"you have never even attempted to fill your agreement. Instead, you unconditionally refused to abide by the terms you yourself made.

"It was a business arrangement, you declared. Do you know the term that is applied to a man or a woman who makes a contract, accepts payment in advance, and then deliberately refuses to meet the conditions agreed upon?"

He took a step forward, his face convulsed, his eyes blazing.

"I'll tell you. A man or woman who does that is a crook. That's what you are—a crook! You took everything I gave you, and never pretended to return value received! I've never complained; I've submitted to your double-dealing, and never insisted that you do the honest thing.

"But I'm a business man; and this is a business deal. You put it on that basis. I've done my part—and now, *by heaven, you'll do yours!*"

He caught her wrists roughly and jerked her toward him. With a cry, she tried to pull away; but in his grasp she was as helpless as a little child.

With one arm clasped firmly about her shoulders, his left hand pinioning both hers, with his right hand he lifted her chin and forced her head back. For the first time in her life Theodora looked into the face of a man who had slipped the leash of his self-control. A wave of sickening fear swept over her. His eyes, blazing with passion, seemed to scorch her own; she felt his hot breath on her cheek.

"Let me go!" she gasped. "You—you brute! Let me go, I say!"

His answer was to tighten his arms around her and laugh harshly.

"Let you go? Where? To another man? No! You're mine, and I'm going to save you! All these months you've been goading me, taunting me, tempting me! I've had to stand aside and bear it.

"I've had to watch another man making love to you, had to go through the tortures of hell, wanting you with every drop of blood in my body! I've wanted you, do you hear? And now I'm going to have you!

"I've suffered enough. You sold yourself to me, and I'm going to have what I paid for! Don't you suppose I know *you never meant to pay?* I've known it from that very first day on the steamer! I paid for your looks, your smiles, your kisses—and you gave them all to another man! Now they're going to return to their rightful owner—now! They're mine—you're mine!"

With a sudden savage movement, he bent his head and crushed his lips against hers. She struggled and tried to cry out, but against the dominant strength of the primitive brute she had evoked she was powerless.

He kissed her eyes, her lips, her throat with fierce, burning kisses, holding her slender body close, devouring

her beauty with his eyes. The room swam before her; she seemed to be swinging through limitless space.

When he released her, as suddenly as he had taken her in his arms, she swayed, tottered, and sank helplessly on the couch. As in a dream she saw him bending over her, heard his voice, strained, hoarse, unlike his usual grave, quiet tones.

"I am coming back in ten minutes. If you lock the door I shall break it down."

She could not speak. When she raised her head again she was alone.

CHAPTER XIII.

The Edge of the Precipice.

FOR some minutes she lay where he had left her, motionless save for the uncontrollable trembling of her body. Her breast was a tumult of warring emotions. Indignation, anger, pride, and shame rapidly succeeded each other, to be followed by a strange and growing terror, an indefinable sensation that was not all physical fear, but which seemed to set her heart to beating violently and sent the blood flying through her veins.

Her pulses quickened. Unfamiliar and confusing sensations surged through her, baffling analysis, defying all her efforts at coherent thought. His kisses still stung her flesh; but she had felt no desire to brush them away. Out of the chaos of tempestuous but vague and unformed impressions there rose one all-dominant instinct, unreasoning, primitive—the instinct for flight.

He had dared to seize her in his arms, to hold her close to him, to kiss her, not once but many times, against her will. More, he had declared that he would assert his rights and claim her as his wife. In ten minutes he would return.

In a panic she sprang from the couch, tore a hat and a long cloak from the closet and put them on with hands that trembled in spite of all her efforts to hold them steady. She must get away—must be out of the house. If he should find her when he returned he would carry out his threat and take her by force. The thought was terrible.

She opened her door noiselessly and made her way down the hall with cautious footsteps, starting at every sound, shivering as if with cold. She must get away—she must get away!

It was not until she found herself hurrying along the road that the thought came to her that she had no place to go.

It was late—after midnight. The last train left for the city at eleven. There was no one with whom she could take refuge for the night.

The sky had clouded over and rain was beginning to fall. She paused, uncertain what to do. It was out of the question to return to Pine Lodge, yet she could not spend the night in the road. To ask admittance at any house at that hour of the night meant that a hundred garbled versions of the story would be flying about before morning.

Her own house, The Oaks, was closed up; there was not even a caretaker and she had forgotten to bring the keys. She could not get in there.

But Arthur Bromleigh would tell her what to do. She could go to him. He would protect her. Why had it not occurred to her at once to seek him out?

The trying scene she had just gone through seemed to have robbed her of her power to think. To whom else should she turn in a crisis such as this?

The big yellow light that marked the entrance to Dalemere Inn shone dimly through the mist half a mile ahead. The rain was now coming down in torrents. She quickened her pace until she was almost running along the muddy road.

By this time her husband had discovered her flight. He might follow

her. She must be safely hidden before he could overtake her.

The inn lights gleamed nearer and nearer. At length, drenched to the skin and shivering in the chill of the night air, she stumbled breathlessly up the path that led to the door.

The night clerk looked curiously at the dripping figure.

"Certainly, Mrs. Wesley," he said in answer to her question. "Mr. Bromleigh is in. I'll send your name right up."

He turned to the telephone and spoke in a low tone to the operator, who glanced around quickly, stared for an instant, and then turned his eyes away.

Conscious for the first time how extraordinary her visit must seem, Theodora drew her cloak closer about her and waited in an agony of suspense.

What were those men thinking of her? What had she herself been thinking — to come here to a public hotel at such an hour?

She had a panic-stricken impulse to turn and flee again into the night, but the thought of her cousin gave her fresh courage. After all, he *was* her cousin. It might look strange that she could come to him at midnight, but beyond that nothing could be said. And he was the only one to whom she could turn, the only man she could trust.

"Theodora, my dear girl, what has happened?" He was hurrying toward her, anxiety on his face. "Come right up to my sitting-room. Why didn't you send for me instead of coming here?"

He took her arm and drew her toward the stairs.

"Lean on me—that's right. There, sit down here. Let me take your cloak—why, you're wet through! You poor child! This is dreadful!"

She permitted him to remove her cloak and hat. Her courage and strength were all gone, and she felt as weak and helpless as a child.

Bromleigh brought her a glass of brandy and forced her to take a few swallows, exclaiming solicitously as he saw how pale and exhausted she looked and exerting himself to the utmost to make her comfortable.

"Now tell me," he urged as a little color stole back to her pale cheeks—"tell me what is the matter, poor little Teddy?"

"It—it was Lynn." Her voice was so low and broken that he had to lean forward to hear it. "He—he insulted me, Arthur. He treated me brutally. And I—I was so frightened! I didn't know what to do, so I came to you for help. He—he threatened me." She shivered again at the recollection. "I ran away — out of the house. He was angry. He has been hearing some gossip about you and me—and there were letters, too. We had a quarrel, and he—he—oh, he was terrible!"

"Letters? From whom?" Bromleigh spoke eagerly.

"I don't know. Just anonymous letters. He has been receiving them for some time, but he did not tell me of them until this evening. He ordered me to stop seeing you so often, and when I wouldn't promise to obey him — he — he — oh, I can't tell you what he did; but I can never go back to that house again — never! You must help me. I feel as if all my strength were gone, all my self-control. I can't even think for myself. You must do it for me. What shall I do, Arthur?" She looked up at him piteously.

Tenderly he smoothed her disordered hair.

"There was just one thing to do, Teddy, and you did it," he said softly. "You came to me. You ought to have come long ago. Wesley is a scoundrel and ought to be shot. I was afraid of this. My poor little girl! To think that any one could be unkind to you."

He drew her head down to his shoulder as he knelt beside the chair. There was a triumphant smile on his

lips, an unpleasant glitter in his eyes; but she could not see his face, and his sympathy was very sweet.

"I'll have the motor sent here at once, and we'll go right up to the city," he continued, still in the same caressing tones. "In the morning, after you're rested and are feeling better, we'll take a train for Halifax and cross from there. He'll never set eyes on you again — the beast! I'll take good care of that—and of you, dearest!"

"But, Arthur" — hesitatingly—"I came away without any money, and I can't go with you. It wouldn't be right. Will you loan me a little until I get to the bank?"

He frowned impatiently.

"Of course it would be right. Why not? We've been all through that. You don't understand. I just want to take care of you and make you happy."

"But he—Lynn would think—"

"Need we care what he or any one else thinks? You don't want to have anything more to do with him. If we go away together he'll apply for a divorce, and then we can marry immediately. For you're going to marry me, sweetheart, just as soon as ever you're free of him."

"If I had only waited!" she sighed. "I thought you didn't want me because I was poor then. Now I'm just as poor, but you want me."

"Poor! What are you talking about?" He stared at her in amazement. "You poor? Wesley settled two cool millions on you, didn't he? And there's the house in the city, and The Oaks — those are both yours, aren't they? But we needn't talk about that."

"But, Arthur, that money — why, we couldn't use that," she protested. "I couldn't use it myself even. It isn't really mine; it's his. He gave it to me for a wedding present. I couldn't permit myself to touch a penny of it if I divorced him."

Bromleigh laughed indulgently.

"What a rigid little Puritan conscience it is! Possession is nine points of the law. He doesn't need the money, and you've a perfect right to keep and use it. No matter why he gave it to you, or when or how, it's yours. And your having it will simplify things for us. With your income and mine we can live decently anywhere and never have a care or worry in the world."

"No, Arthur, no! You don't seem to understand." She sat up, brushing her hair from her forehead. "That money must go back to him at once. I have no moral right to it, or to the houses, no matter what the law would say. And if I had I can't let you go with me; and, Arthur, I can't go with you. I know and you know that there would be nothing wrong in it, but no one else would believe it. Lynn would think—"

"But, my dear girl, that's just what we want him to do!" he said with a smart suggestion of impatience. "If he didn't on what ground could he divorce you?"

"Desertion, of course. I'll never go back to him," she added vehemently. "Never!"

"But desertion takes two years at the very least, perhaps three. And—why, dear heart, I can't wait two years for you! I won't!"

She shook her head decidedly.

"Arthur, I simply couldn't bear to have Lynn—to have any one think that I—" She paused in confusion.

"But, sweetheart, there's the night clerk here, and the rest of those people in the lobby. They saw you come in, you know."

"Of course they did. But that's different. I came here openly and asked for you. They won't think—"

"I'm afraid they will, Teddy. What on earth would prevent them from drawing their own conclusions?"

"Oh, Arthur, you don't mean—" She drew back in startled apprehension.

"Frankly, my dear, I am afraid the

mischief is already done. And when you think of all the other circumstances, how you came in a pelting rain-storm at one o'clock in the morning, there is but one construction that could be put on it, especially in view of all the talk that has been going on, all the rumors that have been circulated about us."

"Don't look so upset," he went on as he saw the growing dismay and horror in her face. "I don't want to alarm you unnecessarily; but you didn't appear to understand, and it is just as well that you should. Anyhow, it doesn't matter. I'm going to take you away from here at once, and you'll never see any of these people again."

"You say it doesn't matter?" Her voice was hoarse. "How can you think that — say that to me? Don't you suppose it matters to me that every one will think I have been careless of my conduct? Don't you suppose that my reputation—my good name—means something to me? You knew what people would think and say—and you brought me up here! Why did you do it? Why did you let me come? I was too unstrung to realize how it would look!"

"Teddy dear," he remonstrated, "you're taking this too seriously. Come, sit down, and let's talk it over calmly. After all, it's not a matter of life and death, you know."

"I haven't been taking it seriously enough," she said in a low tone. "Oh, Arthur" — with an appealing gesture —"I have been blind! That is what Aunt Lydia meant, what Lynn meant! They had heard—they knew what was being said! What have I done? Oh, what have I done?"

"Nonsense!" he exclaimed petulantly. "I tell you, you're making too much of this. Of course it's too late to stop any scandal, but can't you see that it really doesn't matter to us? Why play the tragedy queen about it? It isn't going to help things any if you shed a quart of tears. When we are married every one will forget all about it. In the mean time we love each other; we shall be together. That's enough for the present."

"It may be enough for you, Arthur. It isn't for me!"

She took up her cloak and put it around her shoulders. He did not notice what she was doing; he was lost in a pleased contemplation of what the future held.

"This time we can have our trip by ourselves," he said. "Paris, London, Venice, all the places we longed to visit together. Plenty of time, plenty of money — and love. Oh, Teddy — isn't that enough?"

"It may be for you, Arthur," she repeated. "But not for me. And I'm afraid your kind of love never could be enough. No one could open my eyes to it, though. I kept them tight shut. Aunt Lydia tried, my husband tried, but I was obstinate — I *would* not see!"

"I hope you see now, my dear." His words were followed by a sarcastic smile. "Come, Teddy, sit down. I'll send for the motor at once."

"Please, do," she agreed calmly, "and I will go in it—back to Pine Lodge."

"Back to Pine Lodge!" he almost shouted. "What are you talking about? Do you mean that you would be mad enough to go back there?"

"Yes."

"Do you think that Wesley would let you in, or if he did that you would care for the sort of reception he would extend to you?"

She paled a little but she held her head high.

"At least," she said, quietly scornful, "he never claimed or tried to take more than that which was his by right of purchase. It was his own wife that he proposed to take—not another's. Nor did he want another man's money. He was big enough to make his own way in the world."

"You seem suddenly to find him

admirable!" sneered Bromleigh. "What a pity you didn't discover it before you gave him such conclusive proof of your fidelity!"

"Perhaps the contrast with you has shown me how really admirable he is," she told him. "I thought I had made a mistake when I married him. It was he, not I, who made the mistake."

"Quite likely he believes it now, if he didn't before," remarked Bromleigh sardonically. "You intend to go and tell him all about it?"

"I do—if he will listen to me. I'm going back to tell him everything. I want him to know just how small and mean and contemptible I've been. But before I go I want you to be sure that all along there has been no slightest doubt of you in my mind.

"I doubted you once—just once, on the day that I gave you your freedom. Then I thought that you really cared nothing for me, because you gave every evidence of being glad of your release. But you seemed so sincere that night on the steamer that I thought I had wronged you. Since then you've been my friend and companion. I trusted you absolutely. I came here to-night because of that trust in you.

"I believed that you loved me—as I thought that I loved you. I know now that I do not love you—that I have never loved you. And you—you wanted me because I appealed to your senses, that was all. And when you found out that I had married a rich man you saw a chance to get me to use his money for your benefit.

"Arthur Bromleigh, I despise you as I never thought I could despise any human being—except myself. Good-by."

"You're going back to Pine Lodge and Wesley?"

"Yes."

"He'll be glad to see you. In the state of mind he doubtless will be in he will be a pleasant person for you to meet."

She met his angry, chagrined eyes fearlessly.

"At least I shall meet a man," she said with quiet contempt.

"He'll show you the door, my lady, and then you'll feel more as you did when you first came to me," Bromleigh said meaningly.

"You are in error, sir!"

The crisp statement came from the lips of Lynn Wesley himself. He suddenly stepped from the shadow of the doorway and stood between them, looking from one to the other.

CHAPTER XIV.

Haven.

THE sneering smile froze on Bromleigh's lips. To Theodora it seemed that the look of baffled rage, the expression of impotent passion made his face the most repulsive she had ever seen. It was as if the conventional mask of the courteous gentleman had suddenly been stripped from the countenance of a satyr, leaving only the naked, ugly soul leering out.

She shuddered and pressed her hands over her eyes.

"Theodora, if you are ready, we will go home. The car is at the door," said Wesley in his quiet, grave voice.

Unable to believe her ears, she looked up at him—hope struggling with incredulity in her heart. Home! Was it possible that he would take her home, that the doors of Pine Lodge were still open to her?

She dared not allow herself to believe it; she only stood there, with wide, piteous eyes, breathing in little choking gasps.

"You have a forgiving—and credulous—nature, haven't you, Wesley?" remarked Bromleigh, recovering himself somewhat.

Wesley did not appear to hear him.

"Are you ready, Theodora?" he asked. "If so, suppose we leave."

"I am ready," she breathed.

He put his arm gently about her and led her to the door.

"I may tell you, sir," he said, "that I overheard quite a good deal of your conversation with my wife and that it will be quite unwise for you to see or try to communicate with her in the future. If you do you will have me to reckon with. I am not disposed to touch you at present; but if you annoy her or me at any time I shall be able to demonstrate that I am a man of my word.

"The clerk down-stairs understands that our automobile broke down and that Mrs. Wesley was to await me here. It will be as well for you to leave him with that impression. You calculated the effects of those anonymous letters very nicely, but you left out one important consideration—the woman with whom you had to deal."

"Letters?" Bromleigh paled. Then he laughed lightly.

"If you deny that you wrote them," said Wesley, "you are a liar!"

His firmness was more than Bromleigh could combat. He flushed visibly, but in order not to completely show his weakness said:

"Well, I've got just one satisfaction. She doesn't love you; she does love me. You may hold her through her fear of publicity; but you can't get her love. That's mine! It always has been! You were the highest bidder, but you couldn't buy her heart. That's mine—and always will be."

Turning quickly Theodora faced him.

"No," she said, "you are wrong. I cared for you once, but it's all over—ended. I know you now for what you are, and I never want to see you again. I can only regret that I was so deceived in you, that I trusted you when you were so unworthy."

"And how about yourself?" he asked with cool brutality. "Is your own character so admirable that you can afford to throw stones? But we won't discuss that part of it. You've played with fire and you don't like it because you burned your fingers a little. That's always the way with a woman. You sold yourself like—"

"Bromleigh!" Wesley's voice was not loud, but there was a quality in the even tones that made Bromleigh stop as suddenly as if a hand had clutched his throat.

The eyes of the two men met. Bromleigh's were the first to fall before that cold, dangerous glitter that was like unto shining steel.

With a contemptuous glance Wesley opened the door and led Theodora from the room.

She did not speak again until the motor had borne them swiftly back to Pine Lodge. At the door of her room she turned.

"Will you come in a moment, Lynn?" she asked timidly. "I should like to talk to you."

He followed her inside and placed a chair for her; but she did not sit down. Instead she stood before him with bowed head.

"I want to thank you, that is all," she said. "To thank you—and to say good-by. To-morrow morning I am going up to the city. I shall see Mr. Blackman and have him draw up a reconveyance for the two houses, and also give him a check, made out to you, for the money that is in the bank. I have used very little of it, and perhaps in time I can repay that and what you have spent on me.

"But"—and her voice faltered—"I can never repay the courtesy, the unfailing kindness, the consideration you have shown me. That must be my never-ending debt to you. Nor can I ever make up to you for what I have made you suffer.

"I have been a selfish, light woman, living only for myself, careless of others. It has taken me a long time to find it out; but I know it at last. And I am ashamed—ashamed and humiliated at the depths of my own degradation. I am going to work—

to work with my hands. Aunt Lydia was right. That is what I need. All my life I have had too much luxury, too much idleness.

"I shall never trouble you any more; but I wanted you to know before I went that I realize what I have made you bear and that my deepest sorrow will be the knowledge that I made you unhappy, even for a time.

"You will divorce me as soon as you can, of course. But as long as I bear your name I will keep it clean."

There were tears in her eyes as she turned away.

Wesley did not move.

"Theodora," he said slowly, "the sorrow, the suffering, the humiliation are all mine. To-night I made a beast of myself; I acted the part of a common brute. I had no excuse for doing it, except the pitiable one that I lost my head. That is no excuse at all, and I do not offer it as such. I ask your pardon. But not for that alone. If you can, I want you to try to forgive the rest, and, most of all, the greater wrong that I did you.

"When I asked you to marry me I took advantage of your helplessness; not consciously, but I did it, just the same. I ought to have known that you could not love me. You had never given me the slightest reason to think that you did more than merely tolerate me; and yet, such was my hope, my desire for you, that I thought you might have concealed your feelings—that a little love might grow up in your heart.

"For my conceit I paid dearly, in knowing that you disliked me, that my presence, even as little as I inflicted it, was distasteful to you. But I did not know that you cared for your cousin, or that you had any understanding with him before our marriage. If I had, things would have been different."

He took a step nearer, and laid his hand on her arm.

"My dear," he said earnestly, "what you propose to do is out of the question. Whatever I have given you is yours, to do with as you please. I will not accept any of it again, under any circumstances.

"And you must not think of leaving here. You are not fitted to make your own way in the world, and, thank Heaven, there is no need of your doing it.

"You want your freedom; you shall have it as soon as I can arrange to give it to you. Everything can be managed quietly. I can go away, and then you will take such steps as are necessary. Mr. Blackman can advise you. Promise me that you will stay—that you will do nothing hasty. You will be guided by me in this? I ask it for your own sake—and for mine. Will you promise?"

"I promise, Lynn."

Her face was turned from him as she spoke.

"Thank you. And now I have kept you talking long enough. You are tired and need rest. But, Theodora, I want to assure you that, so long as I remain here, you need have no fear of me. There will never be a repetition of the to-night's scene. Indeed, you probably will not see me. I shall keep out of your way.

"And as soon as I can get things into shape at the office I will go away and leave you in peace. The strike at the shops is almost ended; there will be a settlement at once and it will not be more than a week or so before everything is running smoothly again and I can be spared. Good night."

"Lynn!"

He turned.

"Yes?"

"Will you tell me why you are so good to me—why you are willing to do all this for me?"

"You really want to know — you care?"

"Please."

He smiled a twisted sort of smile.

"Because I love you, Theodora. Because I have loved you since the

very first moment I saw you, and shall love you until I die."

"Then why," she asked, with a little breathless catch in her throat—"why are you going away from me?"

"Because I want to make you happy. You want your freedom and I am going to give it to you. Above all things, I want you to be happy."

"And if I—ask you to stay?"

"Theodora!" A great light dawned in his somber eyes. "Do you realize what that means?"

"Yes." She met his intense gaze steadily, without flinching. "Yes, Lynn, I know. You were right to-night when you called me a crook. I have been one—deliberately. Knowing me for what I have been, will you stay—and let me pay my debt?"

"No!" He dared not look at her. "Forget what I said to-night. I was a cur to speak so to you. You owe me nothing. I will take nothing."

"Not even me?" She held out her hands timidly.

"Theodora!" he cried. "Don't tempt me!"

"Lynn," she said, very softly, "will you believe me when I say that I want to pay? Not because you have the right to claim me if you choose, but—but because I love you. I have loved you all along, I think, only I didn't know it. I—"

Her voice trembled and breathed into silence against his lips.

(The end.)

What Could the Poor Man Do?

BY P. G. ESTEE.

A Game of Chess Over the Zillah Division Wires Helps Sadie to Reach a Quick Decision.

"A CAR of grunts, eh?" says Conductor Jones, taking the live-stock way-bill from my hands. "Say, Ed, do you play chess?"

"Just a little," I says, cautious.

"Well, sir, you ought to have been over at Blair just now. Rat, the night op, was playing a game with the dot-and-dasher at Manley; maybe you heard 'em on the wire. Rat had the board all set out, and I was watching as he made his moves and the moves that fellow tapped out over the wire. All of a sudden the Manley chap makes a move, and it looked to me as if Rat was through for that inning; but Rat, he headed one of those church-member pieces—bishops, ain't they?—in on a long track and went clear across after a derby winner, you know what I mean, knight. That gave Manley the bishop, and he fell for the bait. Rat slipped a dog-house over on the siding alongside the fellow's superintendent—yes, king. The dog-house is backed up by Rat's head chorus-girl, and biff!—it's a derail for the Manley guy.

"Sometimes it's checkers, sometimes it's poker. Last winter it was chess that gripped the Zillah division. It took 'em hard, too. From superintendent to call-boy and from motive-power head to wiper every one was playing chess. They played it in the headquarters office, at the roundhouse, in

the cabooses, in the depots; and when the night men couldn't find any one in town to play with they played over the wire.

"'Rat' Hammond, night man at Blair, first station south — called Rat mostly because he was big and handsome—had been the champion of the wire game until a couple months before, when Sam Moseley came to Manley, the first station north of mine.

"It was nip and tuck, with no one winner more than a night or two at a time. Naturally, us outsiders began to take an interest in their games; even the trainmen were rooting for one or the other, and it was one to the good for Rat that tickled Jones and made him spread out all that vocabulary, trying to tell me about the game, mixing up switch talk, ordinary slang, and chess something fierce.

"There was more than one reason, too, why the games between Rat and Sam kept us excited and interested—that is, those of us who were wise.

"The young fellows—and they were both nice boys — were in love with Sadie Mayner, daughter of the station agent at my town. On certain nights each week — different nights, unless they got their wires crossed, as they did a few times—those boys would get their day men to work, and they would come in on No. 26 or No. 27 and visit Sadie as long as her pa would let 'em.

"Then I had the visitors' company until either No. 1 or No. 2 appeared at three or four o'clock in the morning. Then the lad would have to go back and work for the day man.

"Sadie was so pretty that I didn't wonder the boys were willing to work night and day a good share of the time just to visit with her an hour or so. Me? Oh, I'm an old boomer, drifting here and there. I don't count in this battle at all, except to do a lot of phoning and date-fixing for the rivals and listen to their troubles while they wait for their trains.

"'Uncle Ed,' says Sadie, one evening, dropping in just after I have laid aside my first grist of way-bills, 'if you were me, which of those silly boys would you like the best?'

"'You don't know?' I asks.

"'I like them both so well I can't tell which I really want,' she says, flushing up.

"'If I were you,' I says, 'I would tell the boys to play a game of chess, and the winner could take me along with the glory of the game.'

"I said it offhand and joking, but the little witch laughs and goes out still laughing and the next thing I hear is that the boys are fixing to do that very stunt.

"Of course that's too good to keep and in a few days the whole North End is wise to the fact that there's going to be a game with a whole lot to it besides pastime.

"I am inclined to view it all as more or less of a joke, until the night the game is scheduled to come off. Sadie comes in then, her face white and strained.

"'You started this whole thing, and I have gone and promised to abide by the game—and I don't know whether I want to or not!' she says accusingly.

"'Call it off, right now,' I suggests.

"'No,' she says, wilful as usual. 'Let them have the sport of playing. I'll make the winner sorry, who ever it is.'

"An ordinary boomer operator has no business trying to understand girls of seventeen, so, without further words, I got out the chess board and prepared to follow the game through for her benefit. Sadie isn't an operator, but she is a mighty good chess player.

"Sure enough the boys started their game about eight-thirty, and I'll bet every station on the North End had a bunch hanging around the key puncher, same as they do during the world's series. Each train crew asked for details at every station they passed.

"It got to be ten o'clock and the boys were still playing, but their pieces were pretty well thinned out. Sam had only a castle (Jones calls them 'dog

houses'), a bishop, a knight and two pawns to save his king from checkmate. Rat, he still had his queen and one knight to rally around his king.

"Suddenly Sam made a move that seemed innocent enough, but I heard the girl catch her breath as she quit smiling. Then she leaned forward, watching the instrument as if she would read what Rat was going to say, even before he said it.

"It took him a long time to decide about his move, and when he did click it off and I made the move on our board the girl got pretty white.

"Sam came back prompt with his move, and then I saw the trap he had laid for Rat. Sadie had seen the move before. In spite of anything Rat could do now, Sam could get a pawn to the king row. That meant a queen for him and, very likely, the game after a few moves.

"'Looks like you're going to be Mrs. Moseley,' says I, grinning.

"'But I love Rat! I always have!' she cries.

"Then she begins to sob something awful. Isn't that just like a girl? Wait until the wires are crossed and tangled and then want to get a through circuit.

"'Isn't there a way to ground these old wires so that they can't work on them?' she asks, suddenly springing up.

"I told her that there was and began to hustle things together for No. 54, pulling in just then.

"'Ground them all—please, Uncle Ed,' she begs. 'Ground them and forget about it until 54 has got by Blair. I am going on that train. I don't belong to Sam until he wins that game, and he can't win until he gets a wire and makes a lot more moves. I am going to be Mrs. Hammond by then. That's fair; he hasn't won the game.'

"Well, what could I do except ground every blessed wire? It worked out all right, too. No one ever did know just where they went wrong that night. Poor Sam, he had a pretty fair suspicion though, and he didn't hold the same notions as Sadie regarding the fairness of her decision, but what could he do?

"Anyway, that game helped Sadie to make up her mind—quick and definite."

METAL TIES IN SWITZERLAND.

At present about sixty-five per cent of the Federal Railway (Switzerland) rests upon steel ties and thirty-five per cent upon wooden ties. All of the steel ties have the form or profile of a trough, into which shape they are rolled in the mills. The ends of the ties are bent down, and the trough profile thus closed, and from the point of the attachment of the rails the ties have a slope of one in twenty away from the center of the track. The ties have holes for the attachment of the rails by means of clamp plates, and no tie-plates are used under the rails. The weight of the trough profile is 25.16 kilos (55.47 pounds) per running meter (39.37 inches), and the ties complete with the holes already bored weigh 72.5 kilos (159.84 pounds) each.

According to the requirements of the Federal Railways the steel used in making these ties must have a tensile strength of 35 to 45 kilos (77.16 to 99.21 pounds) per square millimeter (0.00155 square inch), and the coefficient of quality, or the product of the tensile strength and the ductility expressed in percentage, for lengths of 200 millimeters (7.874 inches) must be 900. Furthermore, an entire trough piece shall admit of being bent together on its back without showing any breaking fissures.

For a year or more the Federal Railways have been installing, at the junction points of the rails, double-trough steel ties instead of two ordinary single-trough ties. These double ties are of the same material as are the single ties, and the rails are attached in the same manner, but they weigh 125 kilos (275.58 pounds) each.

Vice-Consul General Frank Bohr, at Zurich, sent the above report to the State Department. It was furnished by the Central Materials Department, which, Mr. Bohr states, has expressed a wish to receive information descriptive of steel ties manufactured in the United States.

On the Editorial Carpet

We Celebrate Our Eighth Anniversary by Sincerely Thanking Our Hosts of Readers.

MANY HAPPY RETURNS.

EIGHT years ago the RAILROAD MAN'S MAGAZINE was born. Behind the first number was a motive which has impelled the conception of every number that has followed—to bring to railroading and railroad men some appreciation of their importance to this country and to every other country on earth.

The RAILROAD MAN'S MAGAZINE was an absolute innovation. Nothing like it had ever been printed before in all the world. Numerous technical publications existed, but in not one of them was sounded the great reverberating note that has rung through every page of this magazine since it started.

It was well enough to tell technicians the very latest mechanical developments, but such publications as undertook to do this were not regarding railroading from the stirring standpoint of real literature. Not one of those publications pictured the mighty *romance* of it all. From the very beginning, the RAILROAD MAN'S MAGAZINE sought to portray this element, and we feel that we have been successful.

Before this magazine appeared, the literature of the railroad—the thrilling tale and tuneful stanza—was inappreciable. Where was the fascinating retrospect that pictured the days of beginning, the struggle of pioneer builders and the accomplishments of modern experts?

One hundred years ago the locomotive became a practicable reality. One hundred years ago this country was a virgin land with great length and breadth and resources—a land that had told the entire earth that here was the home of democracy. And they came, those sturdy pioneers, to build up a nation.

The nation has been established and stands foremost upon the earth. What has done more to bring about this growth than any other single factor? Irrefutably, the railroad. Internal development was necessary before we could reach out the arms of commerce across the seas. And, internally, the railroad was threaded to all points of the compass, building great cities and industries.

Yet it was no cold quest for wealth. Vision and initiative saw the possibilities; sturdy men sought to realize them. The growth of this country through the medium of the railroads is the greatest industrial romance in all the world.

In this magazine we have ever endeavored to reflect it — to show the worth of the railroads and railroad men. Railroad literature was practically established by the RAILROAD MAN'S MAGAZINE. That, aside from our great material success, is our big achievement of eight years.

For our fiction we have won the praise of William Dean Howells, the dean of American literature; and for our magazine, as a whole, we have

attracted the approbation of thousands of men and women in all parts of the world.

Since January 1, 1914, this magazine has published six complete book-length novels, six novels of ordinary length, six novelettes, besides an enlarged quota of short stories and special articles. The book-length novels sell for $1.50 at retail book stores. They have been a big and important feature of our magazine, and the most striking railroad book-length novel ever printed is to appear in our November number, "The Stolen Signal," by George Baron Hubbard.

Turning from song and story, other features have given the RAILROAD MAN'S MAGAZINE an educational value that our readers have never failed to appreciate. In fifty-five articles under the general heading of "Help for Men Who Help Themselves," we have explained many phases of the railroad man's work, both in shop and office. These articles are prepared by men who know and can tell in simple terms what would be otherwise misguiding complexities.

"By the Light of the Lantern" is constantly at the service of any reader. No other publication in the world offers to its readers, free of all cost, so valuable a bureau of information. In eight years not a dozen inaccuracies, aside from a few slight oversights, have crept into this department.

"On the Editorial Carpet" has been allotted generously to readers, and such opinions as we have offered have been for sanity, optimism and progress.

The magazine is bigger and more vital now than it ever was—as a glance at this month's contents will reveal. We are facing the future with greater hope of finer service. We feel that we realize fully what our host of adherents want. The equipment is in fine shape, the wires are all open, the "brass pounders" are on the job, so we want the boys to climb into the Pullmans while we wheel over the main stem for the next twelve months with a bigger tonnage of interest than we have ever carried.

Our orders give us rights over all magazines. All aboard!

53 YEARS IN AN ENGINE CAB.

DENNIS CASSIN, dean of the New York Central engineers, who had been with the road, in the capacity of engineer and fireman since 1861, retired in August, at the age of seventy, without a blemish on his record.

His case, remarkable as it is, is only one of many which do not happen to fall under the public eye. Mr. Cassin himself is probably wondering why so much publicity is given to the rounding out of his career. The Pennsylvania, the B. and O., the Erie, in fact all the older roads can show you many records as good, or nearly as good.

And yet, what a winnowing of the grain, what a sorting out of tares—what a life-long process of elimination is necessary to produce one of these seventy-year-old boys with a perfect score written against his name! How many who started in the race neck and neck with him, with apparently as good a chance of winning, fell by the wayside or were "left at the post"? For in the case of engineers on the "Empire State Express," the "Twentieth Century Limited," the "Pennsylvania Limited," the "Black Diamond," and the host of other famous trains, "many are called, but few are chosen."

When you see one of these men leaning from his cab, waiting for the "high-ball," you may be certain that he is the living embodiment of these desirable qualities:

Perfect physical manhood.

A well-balanced mind, capable of making instant decisions.

Entire absence of fear.

Strict temperance.

An example of right living in every direction.

An even disposition, and a faculty of getting along with his fellows.

Every railroad is loath to part with a man who measures up to those standards, even though he has reached the years of retirement.

"Preferred" runs are usually so ar-

ranged that each engineer makes three round-trips a week only; "doubling" the road in a day. Thus he is a man of considerable leisure. He is no longer the man with the overalls; he is seldom "the man with the greasy overalls" notwithstanding popular belief.

While most of his career has been spent in freight, local passenger, and the ordinary through-passenger service, where he worked the week through, often doubling the regular time by overtime, we will for the sake of simplicity assume that for his fifty years of service on the right-hand side, Dennis Cassin ran the "Twentieth Century Limited" three days a week.

His division was some 150 miles long, therefore, each day he covered 300 miles; 900 miles a week, or 45,000 miles in a year of 50 weeks.

He had to note over 150 signals a trip, or 22,500 signals a year — often through fog, snow or sleet. At least ten per cent of them were generally showing at danger or caution. That means that 2,250 times a year he had a chance to make an error. In probably 100 cases out of these the error would have been fatal. Thus in 50 years he had 5,000 chances to cause loss of life by this one kind of error.

How many times had he been tempted by a refractory injector, an empty lubricator, or some kindred trouble, oft recurring, while the fireman, at the same time, was trying to remove a clinker or a fallen firebrick?

How many times did he try to "take a chance" and call it "clear" without looking?

How many times did he take out his run when he should have been in bed — when brain and muscles had to be flogged to do their work?

How many times has he pulled out of the train-shed when it was almost impossible to keep his mind from dwelling on sickness or sorrow at home?

It is safe to say that he safely negotiated 2,250,000 miles; that he properly observed 1,125,000 signals; that he reported "on time" 15,000 times, except for unavoidable delays!

And he did it all without error!

WHAT ENGINEERS REALLY DO.

THE *Railway Age Gazette* last year set aside considerable space to give locomotive engineers a chance to tell how they individually ran an engine. A large number availed themselves of the opportunity, with the result that the subject should no longer remain a mystery.

The engineers who contributed to the series inform us that the "eagle-eye" does not ordinarily keep his optics "glued to the metals." If he did he would make a poor engineer, besides making himself ill with eye-strain.

The average engineer slouches in his seat, so that the jar and sway of the engine seem to have no effect whatever upon him. He glances nonchalantly from the track to the water-glass, at his watch, and then out over the fields, and you may be sure that nothing at the side of the right-of-way escapes him, either.

But let him approach a bad curve or run over a torpedo, and he immediately becomes more interested.

His hand does not first seek the throttle when he gets "up against" a pair of "red eyes." Nor does he first grip the reverse lever. If he wishes to make the quickest possible stop, the first thing he reaches for is a peculiarly shaped little brass lever, with a button on its stub end. In the words of one engineer, "I would give her some grit and then the big hole."

His throttle was probably closed long before — at the first intimation of danger — otherwise he shuts it at his leisure after doing these other things; for the pull of an engine is a little thing compared with the drag of many brakes in emergency application.

The last thing he ever does is to reverse, and then only when he has "lost his air." Reversing is pretty sure to cause skidding of drivers, and a skidding wheel has very little effect in retarding a train.

Usually there is very little talking in the cab. In the first place, it is difficult; in the second, each man is pretty busy looking after his own affairs.

The engineers who contributed their experiences to the *Railway Age Gazette* have given another popular belief a dash of cold water. In popular fiction the brave engineer always "sticks to his engine" and perishes nobly. Imagine a "hog head" sticking to a wheezy old "Mother Hubbard" towing a string of "battleships" when he is certain she is going into a derail. After he has done all he can, provided he considers the ground safer, he quietly falls out of the window, standing not on ceremony, nor the order of his go-

ing. The fireman heaves his shovel in the air and goes at once.

The reason a great many engineers have stuck to their engines is because they wisely concluded that was the safest place, according to the class of accident impending. It is a very hazardous business leaving an engine moving at a high rate of speed, with nothing softer than crushed stone to light upon; whereas, the impact of a modern locomotive with anything else than another locomotive has little effect back of the cylinders.

Far too often neither of them have time to decide what to do. A shout—the sharp blast of the emergency—a crash, and it is all over.

Best let it stand at this; no engineer worthy of the name leaves before everything possible has been done—which takes only a few seconds—and no engineer fails to warn his fireman before he himself "unloads."

RECENT BOOKS.

FOR STUDENTS.

VALVE-MOTION is one of the most important elements of locomotive practise. That it is a matter of great interest among the men in the operating departments of our railroads is shown by the many questions which appear in "By the Light of the Lantern" from month to month.

F. H. Colvin, associate editor of the *American Machinist*, has published the third-revision volume of "Link Motions, Valve-Gears, and Valve Setting." It should appeal strongly to the valve student. In ten concise chapters he takes up the various phases of gears and approved modern methods, closing his work with descriptions of the valves now in general use. The book is provided with explanatory diagrams, and its general brevity avoids all tendency to be ponderous.

"Link Motions, Valve-Gears, and Valve Setting," by Fred H. Colvin, The Norman W. Henley Publishing Company, 132 Nassau Street, New York City. Price, 50 cents.

SONGS OF A SHACK.

The poems of C. J. Byrne, whose verses first appeared in the RAILROAD MAN'S MAGAZINE, have been neatly printed in a little book entitled "Rhymes of the Rail." Mr. Byrne, who is a brakeman on the St. Paul, possesses the rare gift of being able to write poems that are full of meaning as well as metrical effectiveness. "The Dead Engine," which appeared in the RAILROAD MAN'S MAGAZINE, equaled the tenderness of Eugene Field. It brought scores of letters to this office and hundreds of requests for back copies long after the magazine was off the news-stands.

We have boasted frequently of the unusual literary merit that is to be found among railroad workers, and the fact that Mr. Byrne's poems have been collected in a volume is only one more bit of evidence to back up our statements.

The little volume contains besides "The Dead Engine" and many other poems, "The Message I Read in the Tower," "The Rip Track Boss," and "The Switch Tender." All appeared in the RAILROAD MAN'S MAGAZINE.

"Rhymes of the Rail," published by the Rhymes of the Rail Company, Box 716, St. Paul, Minnesota. Price, 25 cents.

LOCOMOTIVES DIM-EYED GIANTS.

EDITOR, RAILROAD MAN'S MAGAZINE:

IT is my desire to make a few comments concerning the headlight question which is now before every railroad man and many others interested in railroad work. A few of my remarks have to do with several statements made by R. F. Hoffman in the article "Locomotives Dim-Eyed Giants," which appeared in the July issue of the RAILROAD MAN'S MAGAZINE.

Had Mr. Hoffman read the report of the headlight committee submitted before the Master Mechanics' Convention at Atlantic City, June, 1914, he undoubtedly would have become a far wiser man in his ideas of headlight illumination.

There possibly can be only one situation where the electric headlight might prove to an advantage, and that is on a single-track railroad where the engineer does not have to reckon with the blinding glare of passing trains, which is the greatest and most dangerous menace of the electric headlight. But, even with this powerful stream of light, the ability to distinguish objects on the track is limited to a distance of eight hundred feet. The modern high-speed, heavy train cannot be brought to a full stop in so short a distance; therefore, it is quite evident that about all an engineer can do is give a warning signal.

Don't put it all up to the engineer. The trespasser is more at fault than the rail-

road that runs him down. He takes his life in his own hands when he ventures upon private property. Casualty statistics show that by far the greatest number of fatalities on the railroads are among trespassers.

You may ask, "How about the public crossroads?"

Again it is up to the man who crosses the right-of-way. He is warned to "Stop! Look! Listen!" In from sixty to seventy-five per cent of fatalities he heeded not the admonition.

The C. H. and D., and the B. and O. have recently compiled, from actual observation, some very interesting statistics concerning the number of people who fail to use precaution in venturing across a railroad right-of-way.

To turn back to the headlight itself; think once what it would mean to use an electric headlight on the Pennsylvania's main line from Pittsburgh to New York, with the density of traffic passing over four, five, and six tracks; or on the New York Central's main line, where traffic is almost as dense.

Any one who has not ridden on a locomotive of the above-named systems can readily imagine the blinding glare which would prevail by observing the lights of an automobile traveling through the streets of a city.

Why is it that these same Legislatures that are thrusting the electric arc headlight on the railroads, are denouncing the use of electric headlights on automobiles in equally strong terms on account of their blinding glare?

In the last year or two practically every city or State in the country has passed or is passing bills to prohibit the use of the electric headlight on automobiles. Surely no grosser piece of inconsistency was ever recorded.

But, Mr. Hoffman says that this blinding glare may be controlled at will simply by dimming the headlight when approaching another train. Against this contention of glare, he says, is urged the fact that where trains are passing at speed unchecked, the danger of side-swiping from loose freight-car doors, overhanging material, *et cetera*, is most to be expected. This with the not uncommon experience of trains "buckling" or "spilling" from being wrecked, and covering adjacent tracks with débris, would seem to indicate that men at the front should be enabled to see a great length along passing trains. Now my point is this: how can an engineer do this if he has the headlight dimmed so as not to blind the oncoming train? Logic is not established in the conflicting statements mentioned above.

It seems to me that when such able men as those who composed the headlight committee of the Railway Master Mechanics' Association render so complete and authentic a report as they did at the recent convention at Atlantic City, it is time that State Legislatures and other misinformed bodies and persons get the real facts and give them the attention and regard they deserve.—H. L. Russell, East Toledo, Ohio.

CAR SHORTAGE VERY RARE.

Editor, Railroad Man's Magazine:

IT would certainly be a good thing if the freight cars on this continent could be moved faster. Freight cars are frequently delayed by the railways and the public. If they were not delayed so much there would be more of them to go round in times of car shortage, and anything which can bring this situation to the attention of the public is good; but it is a pity that Mr. J. E. Hundley's article on the subject in your February number, entitled "No Excuse for Car Shortage," should be based on a misunderstanding.

On an average the freight cars in the country are each moved about 750 miles in a month. When they are in demand they do better. For instance: during the last serious car shortage in October and November, 1912, they averaged over 800 miles a month; and we hope that, when the next car shortage comes they will do even better.

In obtaining these figures we compared the total mileage made with the total number of cars in existence, including all cars in shops and all surplus cars. If we were to cut out the shop cars and the surplus cars, the miles per month made by the cars which were being used would, of course, be very much higher.

The railways pay each other for the use of cars by the day, and railway men have got into the habit of speaking of the movement of freight cars by the day instead of by the month. Instead of saying, therefore, that a freight car makes, on the average, 750 miles in a month, railway men are in the habit of saying they make 24 miles a day, which amounts to the same thing; but, unfortunately, it is not usually understood that all the idle cars are included. This error was made in Mr. Hundley's article, when he stated:

> The American Railway Association's statisticians determine from their car records that while in transit the average travel of all loaded cars in the United States is approximately

twenty-four miles a day of twenty-four hours—about one mile an hour.

This statement is not true of cars in transit. They go much faster.

Especially is it not true of loaded cars in transit. They move a great deal faster.

Just how fast the average movement of a loaded freight car is, no one can say with any accuracy; but it is undoubtedly well over a hundred miles a day.

Of course, as Mr. Hundley says, a car on the fast-freight train between New York and Chicago will travel a little over three hundred miles a day. On the other hand, a loaded car between New York and Newark, New Jersey, can only make nine miles in a whole day. The shipper has two days to load it and the consignee has two days to unload it, making five days in all to make the trip, or less than two miles a day. These local movements are by no means exceptional, but the average movement of the loaded car is, as above, well over one hundred miles a day.

If Mr. Hundley had understood fully that the records show that the average travel of all cars is approximately twenty-four miles a day, including cars under all circumstances, when being loaded and unloaded, when in transit empty and loaded and when delayed, he probably would not have been so extreme in some of his statements and, perhaps, would not have concluded that there was absolutely "no excuse for a car shortage."

To tell the truth, car shortages are comparatively rare. There has only been one serious car shortage since 1907 in this country; and, if the railways were to provide such enormous facilities that there would never be any car shortage, there would be a tremendous car surplus for eleven months in the year.—A. HALE, General Agent, American Railway Association, New York.

TO PHOTOGRAPH COLLECTORS.

EDITOR, RAILROAD MAN'S MAGAZINE:

I WOULD like to get in touch with any boys or young men who are making collections of photographs of locomotives, and who live within a radius of fifty miles of New York City.—ALLAN GEERTZ, 31 Eagle Rock Way, Montclair, New Jersey.

ADDRESSES WANTED.

INFORMATION is wanted regarding the whereabouts of Frank Loehr. Height, 5 feet 7 inches; blue eyes; sandy hair. Loehr is a German. When last seen he was working with a grading gang between Skidmore and Beeville, Texas, on the San Antonio and Aransas Pass Railway, in 1886. He was then twenty years old. Any information concerning him will be appreciated by his sister, MRS. ROSA PARKER, Norwalk, California.

Information is wanted regarding John W. Malloy. When last heard from he was employed as a photographer at Waxahachie, Texas, about two years ago. He is about five feet five inches in height, has blue eyes and dark hair, and is fifty-two years old. His left arm is crippled. Any information regarding him will be thankfully received by his mother, MRS. MARTHA MALLOY, Station A, San Antonio, Texas.

Information is wanted concerning the whereabouts of Leslie Black, last heard from in Huntly, Montana, about eight years ago, when he was working on a railroad ditch. He generally followed that employment, but sometimes worked in sawmills. He is a rather heavy man, with medium light complexion, about five feet six inches tall, and limps a little. Address his sister, MISS GRACE BLACK, General Delivery, Los Angeles, California.

EDITOR, RAILROAD MAN'S MAGAZINE:

There was a man named William Leaming who railroaded out of Chicago on the Wisconsin Central Railroad in the 80's and up to 1891. I can't learn to which organization he belonged, as neither grand lodge of the B. of L. F. and E., nor the "Big E" knows where he was born, where his people live, or if he has any brothers or sisters. The man I name was my father. He married a Scotch-Canadian girl named Annie McIntosh, from Kirk Hill, Ontario, Canada, whose brother John has raised me.

My mother's people would like to know if some of the old-timers running out of Chicago to-day remember anything about him. If any of his brothers or sisters or other relatives read this they would do me a favor by corresponding.

I have a photograph of the old No. 128, mogul, of the Wisconsin Central, that was given to me by my mother. A picture of this same locomotive appeared in Mr. Arthur Curran's article in your August number. It is said that William Leaming ran that engine during his life.—MALCOLM N. LEAMING, B. of L. F. and E., Snow Drift

Lodge No. 321, Lawson, Saskatchewan, Canada.

THE POETS' CORNER.

CAN any one of our readers supply us with the complete words of the poem, "Going to California," the first verse of which is as follows:

I'm goin' to entertain yuh—
Not about the Pennsylvanyuh,
Not about the New York Central; but
a road down in the South.
You'll see funny sights and scenes
When you start from New Orleans,
If you go to California by the Gila
Monster Route.

THE GILA MONSTER ROUTE.

BY L. F. POST AND GLENN NORTON.

From the RAILROAD MAN'S MAGAZINE, April, 1913.

THE lingering sunset across the plain,
Kissed the rear-end door of an east-bound train,
And shone on a passing track close by,
Where a dingbat sat on a rotten tie.

He was ditched by a shack and a cruel fate.
The con high-balled, and the manifest freight
Pulled out on the stem behind the mail,
And she hit the ball on a sanded rail.

As she pulled away in the falling night,
He could see the gleam of her red tail-light.
Then the moon arose and the stars came out—
He was ditched on the Gila Monster Route.

Nothing in sight but sand and space;
No chance for a gink to feed his face,
Not even a shack to beg for a lump,
Or a hen-house to frisk for a single gump.

As he gazed far out on the solitude,
He drooped his head and began to brood;
He thought of the time he lost his mate
In a hostile burg on the Nickel Plate.

They had mooched the stem and threw their feet,
And speared four-bits on which to eat;
But deprived themselves of their daily bread,
And stuffed their coin for "dago red."

Down by the track in the jungle's glade,
On the cool green grass, in the tules shade,
They shed their coats and ditched their shoes
And tanked up full of that colored booze.

Then they took a flop with their skins plumb full,
And they did not hear the harnessed bull,
Till he shook them out of their boozy nap,
With a husky voice and a loaded sap.

They were charged with "vag," for they had no kale,
And the judge said, "Sixty days in jail."

But the John had a "bindle"—a workers' plea—
So they gave him a floater and set him free.

They had turned him up, but ditched his mate,
So he grabbed the guts of an east-bound freight,
He slung his form on a rusty rod,
Till he heard the shack say, "Hit the sod!"

The John piled off, he was in the ditch,
With two switch-lamps and a rusty switch,
A poor old seedy, half-starved bo,
On a hostile pike, without a show.

From away off somewhere in the dark
Came the sharp, short note of a coyote's bark.
The bo looked round and quickly rose,
And shook the dust from his threadbare clothes.

Off in the west through the moonlit night,
He saw the gleam of a big headlight—
An east-bound stock-train hummed the rail;
She was due at the switch to clear the mail.

As she drew up close, the head-end shack
Threw the switch to the passing-track,
The stock rolled in and off the main,
And the line was clear for the west-bound train.

When she hove in sight far up the track,
She was working steam, with her brake-shoes slack.
She hollered once at the whistle-post,
Then she flitted by like a frightened ghost.

He could hear the roar of the big six-wheel,
And her driver's pound on the polished steel,
And the screech of her flanges on the rail,
As she beat it west o'er the desert trail.

Then John got busy and took the risk,
He climbed aboard and began to frisk,
He reached up high and began to feel
For the end-door pin—then he cracked the seal.

'Twas a double-decked stock-car filled with sheep—
Old John crawled in and went to sleep.
She whistled twice and high-balled out,
They were off—down the Gila Monster Route.

THE HELL-BOUND TRAIN.

BY F. H. LEHMAN.

TOM GREY lay on the barroom floor,
Having drank so much he could drink no more;
So he fell asleep with a troubled brain,
To dream that he rode on the hell-bound train.

The engine with blood was red and damp,
And brilliantly lit by a brimstone lamp,
An imp for fuel was shoveling bones,
While the furnace rang with a thousand groans;
The boiler was filled with lager beer,
And the devil himself was the engineer.
The passengers made such a motley crew—
Church members, atheist, Gentile, and Jew,
Rich men in broadcloth, beggars in rags,
Handsome young ladies, withered old hags,
Yellow and black men, red, brown, and white—
And chained all together—a horrible sight!
While the train dashed on at an awful pace,
And a hot wind scorched their hands and face.

Wilder and wilder the country grew,
As faster and faster the engine flew;
Louder and louder the thunder crashed,
And brighter and brighter the lightning flashed.
Hotter and hotter the air became,
Till the clothes were burned from each quivering frame,
And in the distance there rose a yell—
Ha! Ha! croaked the devil, "We're nearing hell."

Then, oh! how the passengers shrieked with pain,
And begged of the devil to stop the train;
But he capered about and sang with glee,
And laughed and joked at their agony.

"My faithful friends, you have done my work,
And the devil can never a pay-day shirk;
You have bullied the weak, you have robbed the poor,
And the starving brother turned from your door;
You have laid up gold where the canker rusts,
And given free vent to your fleshly lusts;
You have justice scorned and corruption sown,
And trampled the laws of nature down.

"You have drank and rioted, murdered and lied,
And mocked at God in your hell-born pride;
You have paid full fare, so I'll carry you through,
For it's only right you should get your due.

"Why, the laborer always expects his hire,
So I'll land you safe in my lake of fire,
Where your flesh shall waste in the flames that roar,
And my imps torment you more and more."

Then Tom awoke with an agonized cry,
His clothes soaked with sweat, his hair standing high;
Then he prayed as he never prayed before
To be saved from drink and the devil's power.
And his vows and prayers were not in vain,
For he nevermore rode on the hell-bound train.

THE HOGHEAD'S DYING REQUEST.

A HOGHEAD on his death-bed lay,
His life was ebbing fast away,
His friends around him closely pressed
To hear the hogger's last request.

He said, "Before I bid adieu,
One last request I'll ask of you.
Before I soar beyond the stars
Just hook me onto ninety cars.

"Oh, let me on that engine there,
Just see how rough I can handle air,
Oh, let me at some water-tank
Make a big-hole stop and give a yank!

"Then from the corner of my eye
I'll watch the pieces as they fly;
Then I'll calmly sit me down
And watch the dust-clouds settle round.

"Oh, let me pull a draw-bar out,
And take my can with its long spout
And get down upon the ground
And take my time to oil around.

"Then far behind in that red caboose
I'll hear the conductor turning loose
A few pet names, as in days of yore
I've heard a thousand times before.

"Oh, just once more before I'm dead
Let me stand the conductor on his head;
Let me see him crawl from beneath the wreck
With a window-sash hung around his neck.

"And when he comes and wants to fight,
Then I'll appear so innocent like,
And the old excuse I will proclaim:
There's a dynamiter in the train.

"And you, dear friends, I'll have to thank
If you'll let me die at a water-tank;
Within my ears that familiar sound,
The tallow-pot pulling the tank-spout down.

"Oh, let me die holding in my hand
A bunch of waste and the old oil-can;
And let me die there on the ground,
As I've spent years oiling round.

"Oh, let the train with draw-bar down
Have all the crossings blocked in town,
And when they chain those cars together
I hope it 'll be in sloppy weather.

"And when at last in the grave I'm laid,
Let it be in the cool of the water-tank shade,
And put within my lifeless hand
A monkey-wrench and the old oil-can.

"A marble slab I do not crave;
Just mark the head of my lonely grave
With a draw-bar pointing toward the skies
Showing the spot where this hogger lies."

Then fainter grew the hoghead's breath;
His friends around him closely pressed,
His mind was wandering far away,
Perhaps to some other bygone day

When he as a hogger of great renown
Was turning cabooses upside down;
Perhaps his mind was wandering back
To a draw-bar close beside the track.

While he was trying to start the train
And was doing his best to "break the chain."
Then his face lit up in a joyful light
And his soul prepared to take its flight.

His friends bent o'er him and called his name;
He smiled, and said: "I've broken the chain."
Then closing his eyes he said no more.
He was "doubling the hill" to the other shore.

In response to many requests, we will publish in the November RAILROAD MAN'S MAGAZINE, Langdon Smith's famous poem "Evolution," commonly known by the title "When You Were a Tadpole and I Was a Fish"; also several old-time railroad poems which our readers have dug out of their treasure boxes.

"On a cold and stormy night!"

To the modern child blessed with home and school that are radiator heated, there is much wonder at the stories told of the fierceness of by-gone Winters. And to his thinking elders there is greater wonder as to why anybody in these enlightened days still puts off enjoying the cozy-comfort and the fuel economy *forever guaranteed* by

AMERICAN RADIATORS & IDEAL BOILERS

IDEAL Boilers and AMERICAN Radiators are proving in several hundred thousand buildings, of all sizes and kinds, in America and Europe, to be the greatest aid of the century in *utmost betterment* of living conditions, as well as in *reducing the cost of living*. IDEAL Boilers and AMERICAN Radiators bring *freedom* from the back-breaking work, ash-dust and poisonous coal gases which attend the use of old-style heating devices.

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A No. 4-23-W IDEAL Boiler and 483 sq. ft. of 38 in. AMERICAN Radiators, costing the owner $210 were used to heat this cottage. At this price the goods can be bought of any reputable, competent Fitter. This did not include cost of labor, pipe, valves, freight, etc., which vary according to climatic and other conditions.

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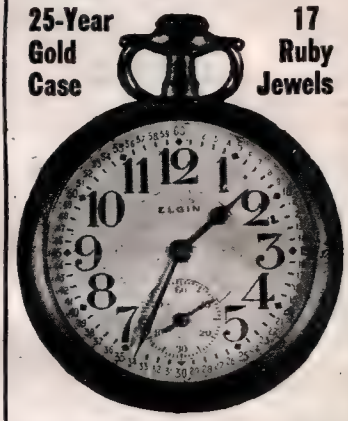

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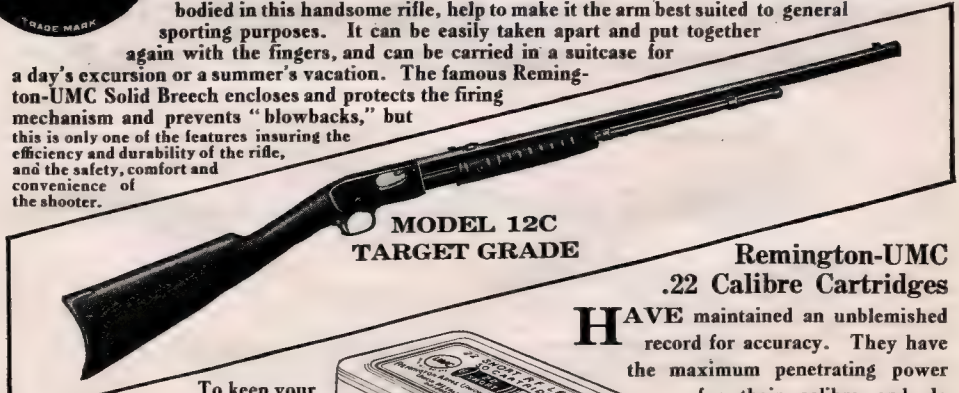

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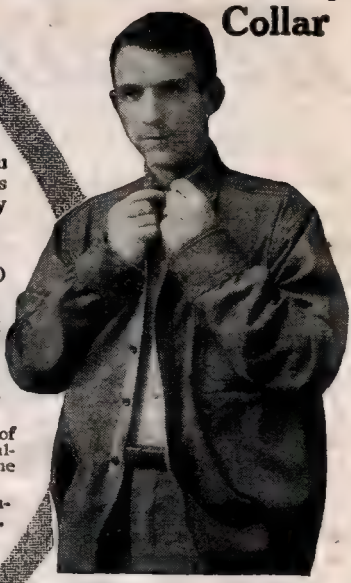

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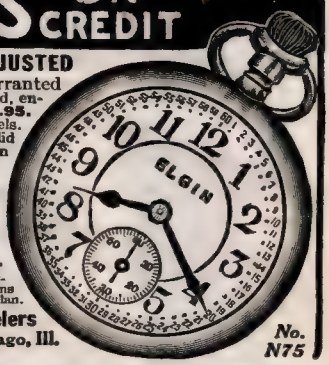

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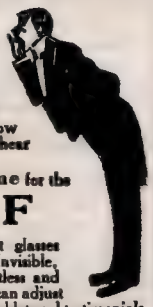

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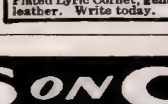

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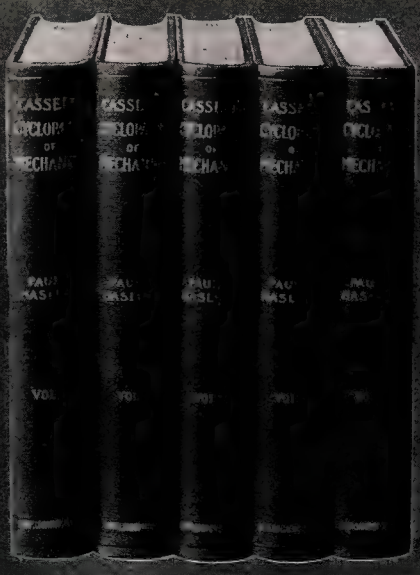

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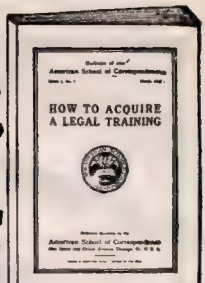

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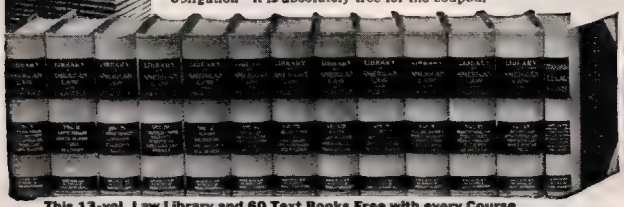

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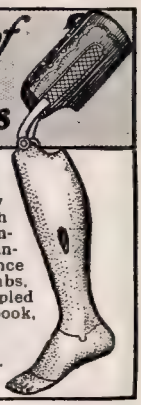

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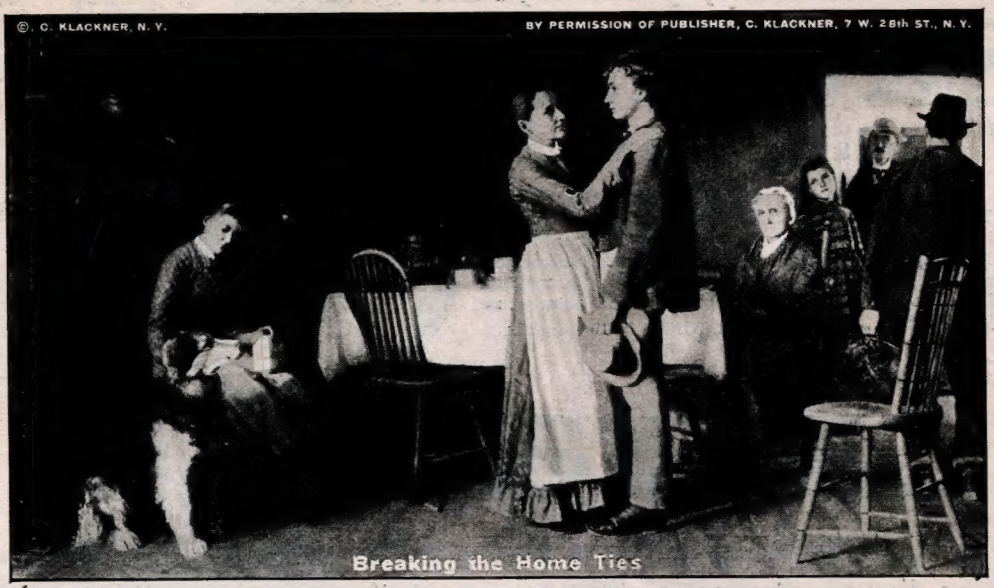

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Concrete Construction	Commercial Law
Mechan. Engineer	Automobile Running
Mechanical Draftsman	Teacher
Refrigeration Engineer	English Branches
Civil Engineer	Good English for Every One
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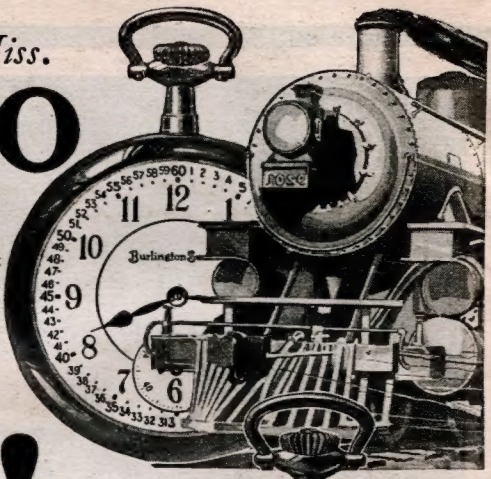

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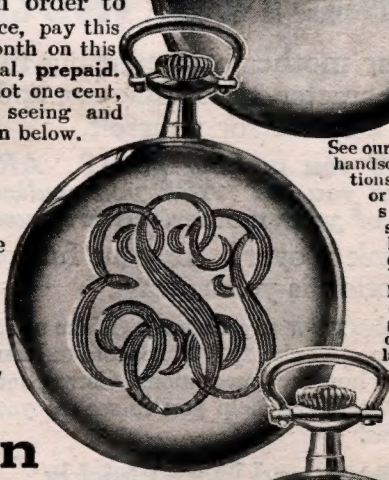

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